# Service Manual

**Compact VHS Camcorder**

## VM-L153 / PV-L353 / PV-L453 / PV-L353-K



## SPECIFICATIONS

| ITEM | SPECIFICATION | 1 | 2 | ITEM | SPECIFICATION | 1 | 2 |
|---|---|---|---|---|---|---|---|
| Power Source | Compact VHS Camcorder: DC 6 V<br>AC Adaptor: 110/120/220/240 V AC, 50/60 Hz<br>Battery: Nickel-Cadmium Type DC 6 V | ○ | ○ | Lens | 20 : 1 zoom lens, F1: 1.7 with auto iris control<br>Focal length: 2.8 mm - 56.0 mm<br>4 speed power zoom function | ○ | ○ |
| Power Consumption | Compact VHS Camcorder: 6 V DC 8.5 W (Max. 11.5 W)<br>AC Adaptor: 19 W<br>1.2 W (when not in use.) | ○ | ○ | Viewfinder | 8.4 mm (0.33 inch) Electronic Viewfinder | ○ | ○ |
| | | | | LCD Monitor | 63.5 mm (2.5 inch) Liquid Crystal Display | ○ | ○ |
| Video Signal | EIA Standard (525 lines, 60 fields) NTSC color signal | ○ | ○ | Memory | SD Memory Card/MultiMediaCard | – | ○ |
| Video Recording System | Head: 2 rotary heads plus flying erase head. Helical scanning system<br>Signal-to-Noise Ratio: SP: more than 43 dB<br>SLP: more than 41 dB<br>Horizontal Resolution (Color/Monochrome) Recording: more than 300 lines<br>Playback: more than 230 lines | ○ | ○ | Image Size | FINE: 640 x 480 pixels<br>Normal: 320 x 240 pixels | – | ○ |
| | | | | Image Storage | FINE: Approx. 60 images<br>Normal: Approx. 210 images (For Optional 8 MB Memory Card) | – | ○ |
| | | | | Image Format | JPEG | – | ○ |
| Audio | Head: Normal Mono: 1 stationary head<br>MIC Input Level (M3 type) - 70 dB<br>Frequency Response: Normal Mono: SP: 100 Hz - 8 kHz<br>SLP: 100 Hz - 5 kHz<br>Signal-to-Noise Ratio: Normal Mono: SP: more than 42 dB<br>SLP: more than 40 dB | ○ | ○ | Minimum Illumination Required | 1.6 lx (F1: 1.7) 0.16 footcandles | ○ | ○ |
| | | | | Operating Condition | 0 °C~40 °C (32 °F~104 °F) (Temperature)<br>10 %~75 % (Humidity) | ○ | ○ |
| Tape Speed | SP: 1-5/16 i.p.s (33.35 mm/s), SLP: 7/16 i.p.s (11.12 mm/s)<br>Record/Playback Time: SP: Max. 30 min, SLP: Max. 90 min, with TC-30 Tape<br>FF Time: Less than 7 min. (TC-30 Tape)<br>REW Time: Less than 4 min. (TC-30 Tape) | ○ | ○ | Weight | Compact VHS Camcorder: 0.874 kg (1.93 lbs.)<br>0.89 kg (1.96 lbs.)<br>AC Adaptor: 0.3 kg (0.66lbs.) | ○<br>○ | –<br>○<br>○ |
| Tape Format | Tape width 0.5 inch (12.7 mm) high density tape | ○ | ○ | Dimensions | Compact VHS Camcorder: 87.2 mm x 123 mm x 226 mm (W x H x D)<br>(3-3/8 inch x 4-7/8 inch x 8-7/8 inch) (W x H x D)<br>AC Adaptor: 68 mm x 41 mm x 140 mm (W x H x D)<br>(2-11/16 inch x 1-5/8 inch x 5-1/2 inch) (W x H x D) | ○ | ○ |
| Pick-Up System | Sequential color difference field reverse system | ○ | ○ | | | | |
| Pick-Up Device | One integral color filter Charge Coupled Device (CCD) | ○ | ○ | Solder | This model uses lead free solder (PbF). | ○ | ○ |

1. VM-L153/PV-L353/PV-L353-K
2. PV-L453

Weight and dimensions shown are approximate.
Designs and specifications are subject to change without notice.

**Panasonic**®/**Quasar**®

# 1. SAFETY PRECAUTIONS
### GENERAL GUIDELINES

1. **IMPORTANT SAFETY NOTICE**
   **There are special components used in this equipment which are important for safety. These parts are marked by ⚠ in the Schematic Diagrams, Circuit Board Layout, Exploded Views and Replacement Parts List. It is essentialthatthese criticalparts should be replaced with manufacturer's specified parts to prevent, shock, fire, or other hazards. Do not modify the original design without permission of manufacturer.**

2. **An Isolation Transformer should always be used during the servicing of AC Adaptor whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personalinjuryfromelectrical shocks. It will also protect AC Adaptor from being damaged by accidental shorting that may occur during servicing.**

3. **When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.**

4. **After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.**

5. **After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.**

### LEAKAGE CURRENT COLD CHECK

1. **Unplug the AC cord and connect a jumper between the two prongs on the plug.**

2. **Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the**

equipment such as screwheads, connectors, control shafts, etc. When the exposed metallic part has a return path to thechassis,thereading should be between 1 M Ω and 5.2 M Ω. When the exposed metal does not have a return path to the chassis, the reading must be infinity.

**LEAKAGE CURRENT HOT CHECK**
**(See Figure 1.)**

1. Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.

2. Connect a 1.5 k Ω, 10 W resistor, in parallel with a 0.15 µ F capacitor, between each exposed metallic part on the set and a good earth ground, as shown in Figure 1.

3. Use an AC voltmeter, with 1 k Ω /V or more sensitivity, to measure the potential across the resistor.

4. Check each exposed metallic part, and measure the voltage at each point.

5. Reverse the AC plug in the AC outlet and repeat each of the above measurements.

6. The potential at any point should not exceed 0.75 V RMS. A leakage current tester (Simpson Model 229 or equivalent) may be used to make the hot checks, leakage current must not exceed 1/ 2 mA. In case a measurement is outside of thelimitsspecified,there is a possibility of a shock hazard, and the equipment should be repaired and rechecked before it is returned to the customer.

**Figure. 1**



Hot-Check Circuit
AC VOLTMETER
0.15 µF
TO APPLIANCES EXPOSED METAL PARTS
EARTH GROUND
1.5 kΩ. 10 W

# 2. PREVENTION OF ELECTRO STATIC DISCHARGE (ESD) TO ELECTROSTATICALLY SENSITIVE (ES)

# DEVICES

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistorsandsemiconductor"chip" components. The following techniques should be used to help reduce the incidence of component damage caused by electro static discharge (ESD).

1. **Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any ESD on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging ESD wrist strap,whichshouldbe removed for potential shock reasons prior to applying power to the unit under test.**

2. **After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.**

3. **Use only a grounded-tip soldering iron to solder or unsolder ES devices.**

4. **Use only an antistatic solder removal device. Some solder removal devices not classified as "antistatic (ESD protected)" can generate electrical charge sufficient to damage ES devices.**

5. **Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.**

6. **Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparableconductivematerial).**

7. **Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.**

   **CAUTION :**

   **Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.**

8. **Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity (ESD)sufficienttodamage an ES device).**

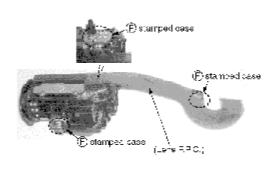# 3. ABOUT LEAD FREE SOLDER (PbF)

**Distinction of PbF PCB:**
PCBs (manufactured) using lead free solder will have a PbF stamp or printing on the PCB.
Only the Lens F.P.C. will have (F) stamp on the Flexible Cable.
(Please refer to figures.)



Printed case

Stamped case

(F) stamped case

(F) stamped case

(F) stamped case

(Lens F.P.C.)

**CAUTION:**
- Pb free solder has a higher melting point than standard solder;
  Typically the melting point is 50 °F - 70 °F (30 °C - 40 °C) higher.
  Please use a soldering iron with temperature control and adjust it to 700 °F±20 °F (370 °C± 10 °C).
  In case of using high temperature soldering iron, please be carefull not to heat too long.
- Pb free solder will tend to splash when heated too high (about 1100 °F/600 °C).
- All products with the printed circuit board with PbF stamp or printing must be serviced with lead free solder.
  When soldering or unsoldering, completely remove all of the solder from the pins or solder area,
  and be sure to heat the soldering points with the lead free solder until it melts sufficiently.

**Recommendations**
Recommended lead free solder composition is Sn96.5 Ag3.0 Cu0.5.

**Note:**
Pb free solder will be introduced on a running change basis for some parts such as the LCD C.B.A. and the Lens F.P.C.
The introduction should be complete by April 2003.

# 4. HOW TO RECYCLE THE NICKEL CADMIUM BATTERY

This product has a fluorescent lamp that contains a small amount of mercury. It also contains lead in some components. Disposal of these materials may be regulated in your community due to environmental considerations. For disposal or recycling information please contact your local authorities, or the Electronics Industries Alliance: <http://www.eiae.org.>

**ATTENTION :**



A nickel cadmium battery that is recyclable powers the product you have purchased. At the end of its useful life, under various state and local laws, it is illegal to dispose of this battery into your municipal waste stream. Please call 1-800-8-BATTERY for information on how to recycle this battery.

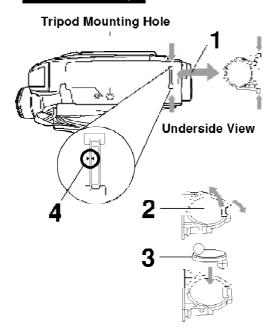# 5. HOW TO REPLACE THE CLOCK BATTERY (LITHIUM BATTERY)

The clock battery is pre-installed. Follow the steps below if replacement becomes necessary.

**WARNING:**

Replace battery with Panasonic or Newsun type CR2025 only. Use of another battery may present a risk of fire or explosion.
Caution: Battery may explode if mistreated. Dispose of used battery promptly. Keep away from children. Do not recharge, disassemble or dispose of in fire.

**Clock Battery**

Tripod Mounting Hole

Underside View

**1** While pinching the 2 tabs, pull Battery Tray out.

**2** Bend middle tab out and remove Battery.

**3** Snap new Battery ($\oplus$ mark down) into Battery Tray.
• Do not reverse the polarity.

**4** Insert Battery Tray so the triangle marks meet.

**Note:**
• Keep Battery out of children's reach. Swallowing it may be harmful.
• Improper installation, discharge, or missing battery causes "CLOCK BATTERY" to appear.
• Battery life is approximately 5 years.

# 6. SERVICE NOTES (PLEASE READ)

## 6.1. SERVICE NOTES

### 6.1.1. LCD F.F.C. (Flexible Flat Cable) CONNECTION CAUTION

Be sure to connect the Flexible Flat Cable (LCD F.F.C.) to Connector FP9101 correctly as shown. Otherwise, the F1001, Q1007 and L1018 for -15 V circuit on the Main C.B.A. may be damaged.
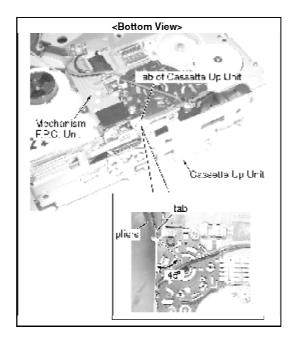
**Fig. 1-1**

### 6.1.2. CASSETTE UP UNIT REPLACEMENT CAUTION

The tab of the Cassette Up Unit has been bent when installed.
When removing the Cassette Up Unit, using pliers, straighten the tab 45° to remove the Cassette Up Unit.
When installing the Cassette Up Unit, bend the tab 45° again using pliers as shown.
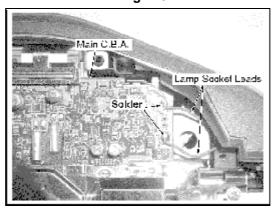
**Fig. 1-2**

&lt;Bottom View&gt;

**Note:**

## Be careful not to break the tab off.

### 6.1.3. MAIN C.B.A. REPLACEMENT NOTE

To remove the Main C.B.A., the Lamp Socket Leads must be unsoldered.
When installing the Main C.B.A., solder these leads onto the Main C.B.A.

**Fig. 1-3**



**Soldering Note:**

## The Lamp Socket Leads have no polarization.

### 6.1.4. EXTENSION CABLES FOR SERVICE

Using the following Extension Cables, place the unit as shown for check and service.

| No. | PART NUMBER | PART NAME | CONNECTION |
|-----|-------------|-----------|------------|
| ① | VUVS0007 | 12Pin Extension Cable | FP8 on Main C.B.A. ~ CCD F.P.C. on Lens Unit |
| ② | VUVS0012 | 22Pin Extension Cable | FP9 on Main C.B.A. ~ Lens F.P.C. on Lens Unit |
| ③ | VUVS0015 | 28Pin Extension Cable | FP1 on Main C.B.A. ~ A/C Head/Capstan F.P.C. on VCR Mechanism Chassis Ass'y |

**NOTE:**

## 1. When using the cassette tape:

A. Be sure to remove the cassette lid cover of cassette tape.

B. Be sure to install the Lock Screw to Cassette Up Unit. After servicing, be sure to remove the Lock Screw.
Refer to "HOW TO HOLD THE CASSETTE UP UNIT IN THE DOWN POSITION WITHOUT CASSETTE COVER INSTALLED."

C. Select the H. SAFETY DEFEAT in SERVICE MODE. Refer to " SERVICE MODE SPECIFICATION (SELF-DIAGNOSTIC SYSTEM). "

Or, connect a silicon diode on component side of the Main C.B.A. as shown to defeat safety function.
(Since Takeup Reel sensor, located on Main C.B.A. does not work when opening Main C.B.A., the mechanism does not work (Reel lock). Therefore, make sure to defeat Safety function.)

2. Use extreme care so as not to apply any excessive pressure to the Cylinder/Head Amp F.P.C. After servicing, be sure to place it correctly. Refer to "Cylinder Unit" in "MECHANISM SECTION."

3. EVF Display always stays ON. To turn off just the LCD Display, tape down the LCD open/close SW.

4. When servicing, avoid causing a from touching the component side of the Battery Catcher C.B.A. to the Main C.B.A.

5. When servicing with the Main C.B.A. installed on the Mechanism Chassis Ass'y (Main C.B.A. in raised position), tighten 2 Screws for stability.

6. Use a grounded ESD wrist strap while disassembling the Lens portion.

7. Use extreme care when unplugging or plugging in connectors. CAUTION:

8. Be sure to connect the Flexible Flat Cable (LCD F.F.C.) to Connector FP9101 correctly as shown. Refer to "LCD F.F.C. (Flexible Flat Cable) CONNECTION CAUTION" in Service Notes. Otherwise, the F1001,Q1007 and L1018 for -15 V circuit on the Main C.B.A. may be damaged.
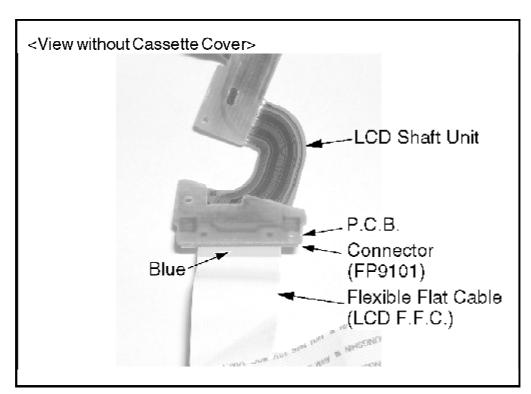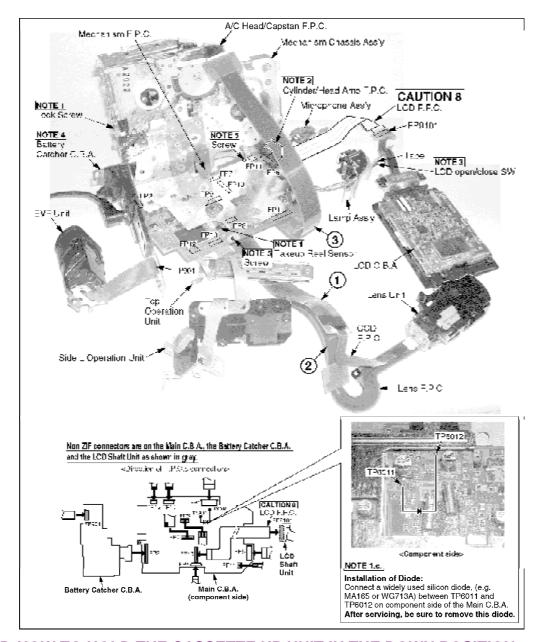
<View without Cassette Cover>

LCD Shaft Unit

P.C.B.

Connector
(FP9101)

Flexible Flat Cable
(LCD F.F.C.)

Blue

Fig. 1-4

## 6.1.5. HOW TO HOLD THE CASSETTE UP UNIT IN THE DOWN POSITION WITHOUT CASSETTE COVER INSTALLED

The Cassette Up Unit will be in the up position without the Cassette Cover installed.
To hold the Cassette Up Unit in the down position without it, a Lock Screw is needed.



Lock Screw (VHDW0125)

A Lock Screw is supplied as a service fixture.

### 6.1.5.1. How to install the Lock Screw:

## 1. If the Lock Lever, shown in gray, is set to Position "A" (No hole), change Position "A" (No hole) to Position "B" (Hole) as shown in Fig. 2-2 by pushing Portion (a) as shown in Fig. 2-1.
Note:

**If the mechanism is in EJECT position, the Lock Lever cannot be changed to Position "B" by pushing Portion (a). In this case, apply power to set the mechanism to STOP position.**

Fig. 2-1
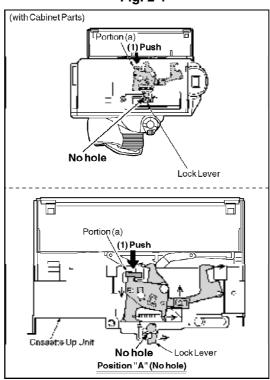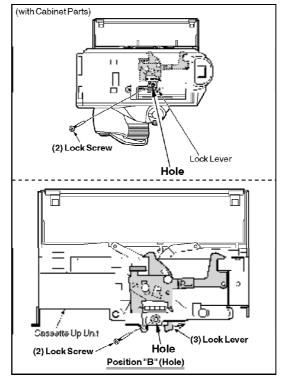


Fig. 2-2

2. **Install the Lock Screw in the Hole (Threaded Hole for Lock Screw access) in Position "B".**

3. **Hold down the Cassette Up Unit and confirm that the Cassette Up Unit will stay in the down position.**
   **Note:**
   **If the Cassette Up Unit will not stay in the down position, slide the Lock Lever to the right slightly.**

**6.1.5.2. Lock Screw is required when:**

1. **performing "TAPE INTERCHANGEABILITY ADJUSTMENT."**

2. **servicing with cassette tape in Service Position. The procedure below is required when the unit is in safety defeat mode.**
   A. **Confirm that the Lock Lever, shown in gray, is set to Position "A" as shown in Fig. 2-1, and that the mechanism is in the STOP position.**
   B. **Insert the cassette tape.**
   C. **Push Portion (a) as shown in Fig. 2-1 while keeping the Cassette Up Unit in the down position so the mechanism starts loading. (Cassette Down Switch is ON.)**

```
---------------- CAUTION: ----------------
1. After servicing, be sure to remove the Lock Screw.
2. The replacement Cassette Up Unit and Mechanism
   Chassis Ass'y are supplied with a Lock Screw
   installed. Make sure to remove this Lock Screw
   when replacing them.
```

## 6.1.6. SERVICE MODE SPECIFICATION (SELF-DIAGNOSTIC SYSTEM)

**Operation:**

1. **Start-up: Press and hold all of the M.Focus, REC, and Stop buttons over 2 seconds, the unit goes into the self- diagnostic mode and main menu appears.**

2. **Mode Selection: Press M.Focus button to change and select self-diagnose mode.**

3. **Close: Turn off the Power Switch.**

**Display : Following descriptions can be displayed on EVF and TV monitor at the same time.**

## 1. Main Menu

```
              SERVICE MODE

        START: M.FUCUS BUTTON
        QUIT  : POWER OFF



                                    * 61
```
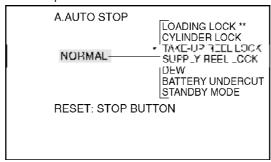
Press and hold all of the M.Focus, REC and Stop buttons
over 2 seconds. The Main Menu appears on E.V.F. and TV
monitor.

* This figure stands for the Model No. of camcorder as
  shown.

| MODEL NO. | VM-L153 | PV-L353 | PV-L353-K | PV-L453 |
|-----------|---------|---------|-----------|---------|
| * Figure  | 41      | 42      | 43        | 61      |

                              ⬇ M.FOCUS BUTTON

## 2. Auto Stop

```
  A.AUTO STOP
                        ┌LOADING LOCK **
                        │CYLINDER LOCK
                       •┤TAKE-UP REEL LOCK
  NORMAL ───────────────┤SUPPLY REEL LOCK
                        │DEW
                        │BATTERY UNDERCUT
                        └STANDBY MODE

  RESET: STOP BUTTON
```
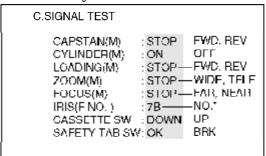
When the unit suddenly shuts off, It is possible to see the
cause description in this menu. Even if the AC adaptor or
battery is disconnected, the most recent failure will be
memorized. Pressing the Stop button at this time will reset
the memory.

* Cause descriptions can be displayed until power shuts off.
** LOADING LOCK --- EJECT
                    STOP
                    STBY
                    REC / PB
(When it is possible to detect the lock position, loading lock
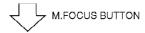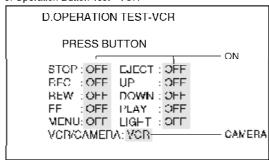position can be displayed.)

                              ⬇ M.FOCUS BUTTON

3. Auto Test

```
┌─────────────────────────────────────┐
│                                     │
│        B.AUTO TEST                  │
│                                     │
│         SET VCR/CAMERA SW TO        │
│         CAMERA                      │
│                                     │
│         1. CASSETTE TAPE IN         │
│         2. PRESS REC BUTTON         │
│                                     │
│                                     │
│                                     │
└─────────────────────────────────────┘
```
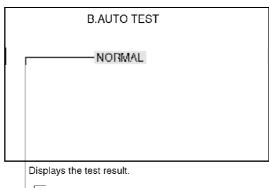
a. Cassette tape in and press REC button.
b. The unit operates automatically on tests.

⬇ REC BUTTON

```
┌─────────────────────────────────────┐
│                                     │
│        B.AUTO TEST                  │
│                                     │
│            ■ REC                    │
│                                     │
│            □ REVIEW                 │
│                                     │
│            □ PLAY                   │
│                                     │
│            □ REC PAUSE              │
│                                     │
└─────────────────────────────────────┘
```

a. Automatically operates REC (30sec), REVIEW, PLAY, and STOP.
b. Displays the test status while auto test is progressing. (■ Mark shows the test status.)

⬇ AUTO

```
┌─────────────────────────────────────────────┐
│                 B.AUTO TEST                  │
│                                              │
│     ┌─────────── NORMAL                      │
│     │                                        │
│     │                                        │
│     │                                        │
│     │                                        │
│     │                                        │
│     │                                        │
│     │                                        │
│     │                                        │
└─────────────────────────────────────────────┘
```

Displays the test result.

┌ LOADING LOCK **
│ CYLINDER LOCK
* │ TAKE-UP REEL LOCK
│ SUPPLY REEL LOCK
│ DEW
│ BATTERY UNDERCUT
└ STANDBY MODE

\* Cause descriptions can be displayed until power shuts off.
\*\* LOADING LOCK --- EJECT
                 STOP
                 STBY
                 REC / PB
(When it is possible to detect the lock position, loading lock position can be displayed.)

⬇ M.FOCUS BUTTON

4. Motor Control Signal Check

```
┌─────────────────────────────────────────────┐
│  C.SIGNAL TEST                               │
│                                              │
│     CAPSTAN(M)    : STOP    FWD. REV          │
│     CYLINDER(M)   : ON      OFF               │
│     LOADING(M)    : STOP ── FWD. REV          │
│     ZOOM(M)       : STOP ── WIDE, TELE        │
│     FOCUS(M)      : STOP ── FAR, NEAR         │
│     IRIS(F NO. )  : 7B ──── NO.*              │
│     CASSETTE SW   : DOWN    UP                │
│     SAFETY TAB SW : OK      BRK               │
│                                              │
└─────────────────────────────────────────────┘
```

Displays all of motor drive signals and switch inputs from mechanism chassis.
\* Iris No. display

⬇ M.FOCUS BUTTON

5. Operation Button Test - VCR

```
┌─────────────────────────────────────────────┐
│      D.OPERATION TEST-VCR                    │
│                                              │
│      PRESS BUTTON                            │
│                                ┌──── ON      │
│      STOP : OFF   EJECT : OFF                 │
│      REC  : OFF   UP    : OFF                 │
│      REW  : OFF   DOWN  : OFF                 │
│      FF   : OFF   PLAY  : OFF                 │
│      MENU : OFF   LIGHT : OFF                 │
│      VCR/CAMERA : VCR ──────── CAMERA         │
└─────────────────────────────────────────────┘
```
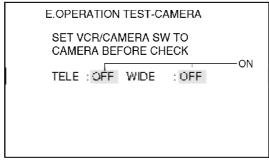
Tests connection of VCR operation buttons by pressing each button.

⬇ M.FOCUS BUTTON

## 6. Operation Button Test - Camera

```
        E.OPERATION TEST-CAMERA

        SET VCR/CAMERA SW TO
        CAMERA BEFORE CHECK
                                    ──── ON
        TELE : OFF   WIDE  : OFF



```

Tests connection of camera operation buttons by pressing
each button.

⬇ M.FOCUS BUTTON

## 7. Loading Test

```
        F.LOADING TEST

        SET VCR/CAMERA SW
        TO VCR

        START: REC BUTTON
        QUIT  : STOP BUTTON



```

Repeats loading / unloading 10 times without tape to check
loading mechanism.

⬇ M.FOCUS BUTTON

## 8. Mechanism Position

```
        G.MECHANISM POSITION

            ■ EJECT

            □ STOP STANDBY

            □ STANDBY

            □ REC/PLAY/FF
```

Displays mechanism position by monitoring mode switch.
(■ mark shows the current mechanism position.)

⬇ M.FOCUS BUTTON

9. Safety Defeat

```
H.SAFETY DEFEAT

SET VCR/CAMERA SW
TO VCR

1.CLOSE CASSETTE DOOR
   WITHOUT TAPE

2.PRESS OPERATION
   BUTTONS
```

a. Defeats following safety functions. Cylinder lock, Reel
   lock, End of tape, Battery under cut, Safety tab switch.
b. It is possible to check mechanism movement without
   tape by pressing operation buttons in this mode.

**Another Method to put the unit into Safety Defeat mode:**
Connect a silicon diode between TP6011 and TP6012 on
component side of the Main C.B.A.
Refer to "EXTENSION CABLES FOR SERVICE" in
"SERVICE NOTES."

⬇ M.FOCUS BUTTON
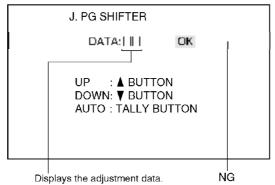
10. Tracking Fix

```
I. TRACKING FIX
```

Functions to fix tracking position to its center for tape path
alignment.

⬇ M.FOCUS BUTTON

11. PG Shifter



J. PG SHIFTER

DATA:| ‖ |        OK

UP    : ▲ BUTTON
DOWN: ▼ BUTTON
AUTO : TALLY BUTTON

Displays the adjustment data.              NG
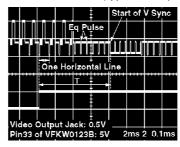
This is a function to adjust Head Switching Position (PG SHIFTER) without using the Personal Computer.
Perform adjustment procedure (AUTO) or (MANUAL).
To adjust with this function, the TP Board, Audio/Video cable, oscilloscope, and VHS-C Alignment Tape (VFMS0004H6C) are necessary.
For connecting TP Board, refer to "HOW TO USE TP BOARD" in SERVICE NOTES.
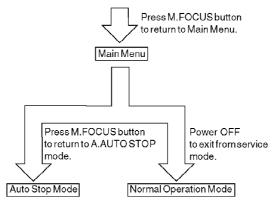
**Adjustment procedure (AUTO)**
1. Insert the VHS-C Alignment Tape to the camcorder.
2. Press PLAY button.
3. Press TALLY (REC) button while playing back.
   Head Switching Position (PG SHIFTER) will be adjusted automatically.
4. "OK" indicator will be displayed on EVF.
   **Note:**
   If "NG" indicator is displayed, adjust again.
5. Confirm that T is 6.5 H±0.5 H (approx.0.4 ms) as shown.



**Adjustment procedure (MANUAL)**
1. Perform steps 1 ~ 2 in Adjustment procedure (AUTO).
2. Press UP or Down button while playing back so that T is 6.5 H±0.5 H (approx. 0.4 ms).

Press M.FOCUS button to return to Main Menu.

Main Menu

Press M.FOCUS button to return to A.AUTO STOP mode.

Power OFF to exit from service mode.

Auto Stop Mode                Normal Operation Mode

**(For model with Photo Shot function)**
**If any of the following numbers appear on-screen in Photo mode, the palmcorder may need**

**service. Do not remove the battery (if attached) and write down the displayed number.**

| Error No. | Description |
|-----------|-------------|
| U11 | Card Error |
| U12 | Card Error |
| U13 | Card Error |
| U14 | Card/Camcorder Dialogue Error |
| U15 | No Card Memory |
| U16 | Captured image limit exceeded |
| U17 | Captured image limit exceeded |
| U30 | Error other than above |

**Note:**
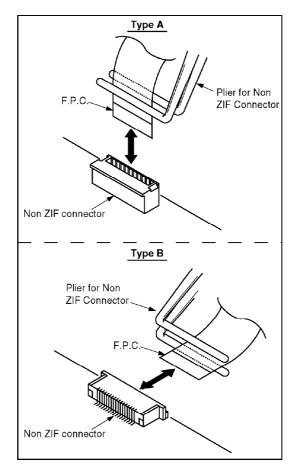
**While battery remains, the Error No. will be displayed again when the power is switched off and on again. (Once the Battery is removed or dead, Error No. will not remain in the memory.)**

**Refer to "TROUBLESHOOTING HINTS."**

## 6.1.7. REMOVAL/INSTALLATION OF F.P.C. FROM NON ZIF (ZERO INSERTION FORCE) CONNECTOR

**Removal/Installation of F.P.C. from the Non ZIF (Zero Insertion Force) connector:**

1. **The Non ZIF connectors and the ZIF connectors are used on the unit. And there are 2 types (Type A, Type B) of Non ZIF connectors.**

2. **To remove the F.P.C. from the Non ZIF connector, use the Plier for Non ZIF Connector (LSVQ0028) to pull out the F.P.C. as shown. The same Plier for Non ZIF Connector (LSVQ0028) should also be used to install the F.P.C. to the Non ZIF Connector.**

**Fig. 3-1**

Type A

Type B

# 3. Connect the F.P.C.s to the Non ZIF connectors, verifying the direction of F.P.C as shown.

**Fig. 3-2**



## 6.1.8. METHOD FOR LOADING/UNLOADING OF MECHANISM

### 6.1.8.1. (Electrical Method)

**CAUTION:**

## If loading does not start after DC Power Supply is applied, DO NOT continue to applying DC Power Supply.

Connect the TP Board as shown, and apply 3 VDC Power Supply (DC (+) to TP21, DC (-) to TP20 for loading or DC (+) to TP20, DC (-) to TP21 for unloading). Refer to "HOW TO USE TP BOARD."

It normally takes approx. 6 seconds to unload the Mechanism from fully-loaded position to EJECT position.

**Fig. 4-1**



Cassette Cover
TP Clip 36P
(LSLP0005C)
TP Adjustment
Cable 40P
(LSJP0009A)
DC Power
Supply (−3 VDC)
TP20
TP21
TP Adjustment
P.C.B. 40P
(VFKW0123B)
Loading
(DC +3 V to TP21, DC (-) to TP20)
Unloading
(DC +3 V to TP20, DC (-) to TP21)

**6.1.8.2. (Manual Method) without Cabinet Parts**

**Turn the Gear of Reduction Gear Unit clockwise (for loading) or counterclockwise (for unloading) manually.**

**It is necessary to rotate approx. 80 times from fully-loaded position to EJECT position.**

**Fig. 4-2**



Mechanism
P.C.
Gear of Reduction
Gear Unit
Unloading
Loading
**Bottom View**
Note:
Indication of Reduction Gear Unit shows direction of Loading.
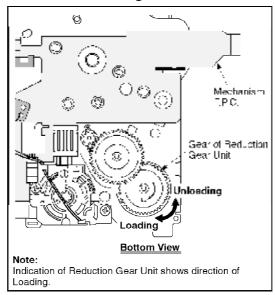
## 6.1.9. HOW TO REMOVE A JAMMED TAPE

**CAUTION:**
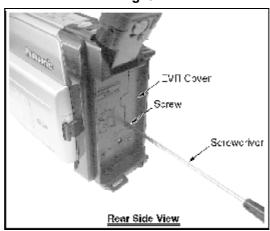
**If loading does not start after DC Power Supply is applied, DO NOT continue applying DC Power Supply.**
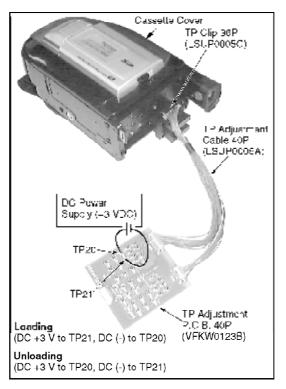
**Remove a jammed tape as follows:**

## 1. Remove a Screw and remove the EVR Cover.

**Fig. 5-1**



## 2. Place the unit with the Cassette Cover facing upward.

## 3. Connect the TP Board through the TP Board slot.

## 4. Apply +3VDC Power Supply to TP20 (+) and TP21 (-) on the TP Board to unload the mechanism. It normally takes approx. 6 seconds to unload the Mechanism to EJECT position. Then, remove the Power Supply and remove the TP Board.

**Fig. 5-2**

Cassette Cover
TP Clip 36P
(LSJP0005C)
TP Adjustment
Cable 40P
(LSJP0005A)
DC Power
Supply (+3 VDC)
TP20
TP21
TP Adjustment
P.C.B. 40P
(VFKW0123B)
Loading
(DC +3 V to TP21, DC (-) to TP20)
Unloading
(DC +3 V to TP20, DC (-) to TP21)

**5. Open the Cassette Cover fully.**

**6. Remove the tape slack by rotating the Takeup Reel Gear of the cassette tape.**

**Fig. 5-3**



Tape slack

Takeup
Reel
Gear

Cassette tape

**Bottom View**

**7. Take out the cassette tape.**

**8. Connect the Power or Battery to set the Mechanism to STOP Position.**

### 6.1.10. HOW TO USE TP BOARD

# 1. performing "TAPE INTERCHANGEABILITY ADJUSTMENT."

# 2. performing "PC-EVR Adjustment."

# 3. the cassette tape is jammed. Refer to "<span style="color:red">HOW TO REMOVE A JAMMED TAPE</span>."

# 4. loading or unloading the Mechanism (Electrical Method).

# 5. performing a signal check.
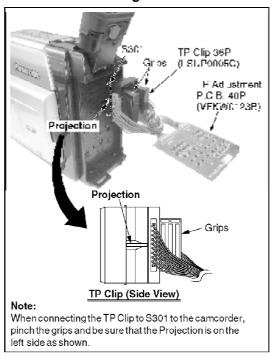
# 1. Assemble the TP Board as shown.

**Fig. 6-1**



TP Clip (Side View)
Projection
Blue wire
Pin 1: White wire
Red wire

TP Clip 36P
(LSUP0005C)
Pin 1: White wire
(Other pins: Blue/Red wire)
Projection
Blue wire
Red wire

TP Adjustment Cable 40P
(LSUP0005A)

12P 7P 10P 11P

12P 7P 10P 11P

7P

(TP SIDE)          (RUBBER SIDE)

TP Adjustment P.C.B. 40P
(VFKW0123B)

Note:
When inserting the TP Adjustment Cable into the TP Clip,
be sure to insert the cable with the white wire (Pin 1) into the
opposite side of the TP Clip Projection as shown.

# 1. Connect the TP Board to Camcorder as shown.

**Fig. 6-2**



**Note:**
When connecting the TP Clip to S301 to the camcorder, pinch the grips and be sure that the Projection is on the left side as shown.

6.1.10.4. Signal description on TP Adjustment P.C.B. 40P (VFKW0123B)

**Fig. 6-3-1**

| Pin No. | Signal Name | Description | Waveforms |
|---|---|---|---|
| 1 | GND | Grounding terminal | ------------ |
| 2 | IRIS | To monitor IRIS at Pin 35 of IC605 on Main C.B.A. |  Camera Mode (Gray Scale Chart) |
| 3 | GND | Grounding terminal | ------------ |
| 4 | Not used | ------------ | ------------ |
| 5 | Not used | ------------ | ------------ |
| 6 | EVR MODE (L) | EVR mode select: low | ------------ |
| 7 | CAM +4.5 V | Power terminal | ------------ |
| 8 | EVR SERIAL DATA 1 | Serial data output from PC to camcorder | ------------ |
| 9 | V-SYNC | [For model without Photo Shot function] To monitor V sync signal at Pin 56 of IC301 on Main C.B.A. [For model with Photo Shot function] To monitor V sync signal at Pin 115 of IC301 on Main C.B.A. |  Camera Mode |
| 10 | EVR SERIAL DATA 0 | Serial data output from camcorder to PC | ------------ |
| 11 | CAMERA RESET (L) | Camera microcontroller reset: low | ------------ |
| 12 | Not used | ------------ | ------------ |
| 13 | EVR SERIAL CLOCK | Serial clock between PC and camcorder | ------------ |
| 14 | EVF-VCOM | To monitor VCOM signal at Pin 38 of IC901 on Battery Catcher C.B.A. |  Rec/PB Mode (Color Bar Chart) |
| 15 | Not used | ------------ | ------------ |
| 16 | EVF-Blue | To monitor EVF blue signal at Pin 40 of IC901 on Battery Catcher C.B.A. |  Rec/PB Mode (Color Bar Chart) |
| 17 | EVF-Green | To monitor EVF green signal at Pin 43 of IC901 on Battery Catcher C.B.A. |  Rec/PB Mode (Color Bar Chart) |

**Fig. 6-3-2**

| Pin No. | Signal Name | Description | Waveforms |
|---------|-------------|-------------|-----------|
| 18 | LUMINANCE | To monitor luminance signal at Pin 76 of IC901 on Main C.B.A. | Camera Mode (Color Bar Chart) |
| 19 | EVF-Red | To monitor EVF red signal at Pin 45 of IC901 on Battery Catcher C.B.A. | Rec/PB Mode (Color Bar Chart) |
| 20 | LOADING MOTOR 0 | To monitor supply voltage to loading motor (+4.5 V or GND) | ------------ |
| 21 | LOADING MOTOR 1 | To monitor supply voltage to loading motor (+4.5 V or GND) | ------------ |
| 22 | SUPPLY REEL PULSE | To monitor supply reel pulse at Pin 80 of IC601 on Main C.B.A | |
| 23 | Not used | ------------ | ------------ |
| 24 | Not used | ------------ | ------------ |
| 25 | PB CTL PULSE | To monitor PB control pulse at Pin 76 of IC601 on Main C.B.A | PB Mode |
| 26 | SUPPLY PHOTO TR (L) | To monitor Supply Photo TR signal (TR on: low) | ------------ |
| 27 | CAP FG | To monitor capstan FG signal at Pin 67 of IC600 on Main C.B.A. (SP: 2155 Hz, SLP: 719 Hz) | PB Mode(SP)   PB Mode(SLP) |
| 28 | TRAP MONITOR | To monitor B-Y signal at Pin 37 of IC901 on the Main C.B.A | Rec/PB Mode (Color Bar Chart) |

**Fig. 6-3-3**

| Pin No. | Signal Name | Description | Waveforms |
|---------|-------------|-------------|-----------|
| 29 | H-SYNC | To monitor H sync signal at Pin 61 of IC3001 on Main C.B.A. (In EVR adjustment mode, 629 kHz carrier appears.) | 1V — 20µs — Rec/PB Mode |
| 30 | PB LUMINANCE | To monitor PB luminance signal at Pin 23 of IC3001 on Main C.B.A. | 0.2V — 5ms — PB Mode |
| 31 | YNR | To monitor YNR error signal at Pin 21 of IC3001 on Main C.B.A. | 20mV — 5ms — PB Mode |
| 32 | ENVELOPE | To monitor PB envelope signal at Pin 7 of FP5 on Main C.B.A. | 0.2V — 5ms — PB Mode |
| 33 | HEAD SW | To monitor head switching signal at Pin 23 of IC3001 on Main C.B.A. | 2V — 5ms — PB Mode |
| 34 | Not used | ------------ | ------------ |
| 35 | GND | Grounding terminal | ------------ |
| 36 | GND | Grounding terminal | ------------ |
| 37 | REC CHROMINANCE | To monitor recording chrominance signal at Pin 35 of IC3001 on Main C.B.A. | 50mV — 20µs — Rec Mode |
| 38 | REC LUMINANCE | To monitor recording luminance signal at Pin 27 of IC2001 on Main C.B.A. | 0.1V — 5ms — Rec Mode |
| 39 | Not used | ------------ | ------------ |
| 40 | Not used | ------------ | ------------ |

## 6.1.11. EEPROM DATA

<span style="color:red">CAUTION:</span>

**Be sure to save the EEPROM data using PC-EVR Adjustment Program before service and adjustment in order to make sure to avoid an accidental data loss, etc. using PC-EVR Adjustment Program.**
**Click the desired button in Data editor menu for saving the EEPROM data, writting the EEPROM data which you stored in your**

# PC to the EEPROM IC, or writing the initial data to the EEPROM IC.

EEPROM IC

| C.B.A. | EEPROM IC Ref. No. |
|---|---|
| Main C.B.A. | IC306 |
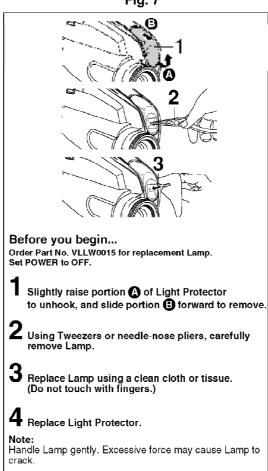
## 6.1.12. HOW TO REPLACE THE LAMP

**DANGER:**
Use only replacement Lamp (PART NO. VLLW0015) supplied by Panasonic to reduce risk of fire.
Handle new Lamp with cloth or tissue as skin oils will decrease Lamp life.
Remove Light Protector and allow Lamp to cool before replacing to avoid possible burn hazard.

**Fig. 7**



**Before you begin...**
Order Part No. VLLW0015 for replacement Lamp.
Set POWER to OFF.

**1** Slightly raise portion **A** of Light Protector to unhook, and slide portion **B** forward to remove.

**2** Using Tweezers or needle-nose pliers, carefully remove Lamp.

**3** Replace Lamp using a clean cloth or tissue. (Do not touch with fingers.)

**4** Replace Light Protector.

**Note:**
Handle Lamp gently. Excessive force may cause Lamp to crack.

## 6.1.13. HOW TO ACCESS THE MANUAL TRACKING CONTROL

Press the UP (Tracking Up) or Down (Tracking Down) button to perform the Manual Tracking Adjustment in Playback Mode.

## 6.1.14. SPECIAL NOTE

All integrated circuits and many other semiconductor devices are electrostatically sensitive and therefore require the special handlings techniques described under the "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" section of this service manual.

## 6.1.15. MODEL NO. IDENTIFICATION MARK

Use Marks shown in the chart below to distinguish the different models included in this Service Manual.

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| NOT USED | PT |

**Note:**
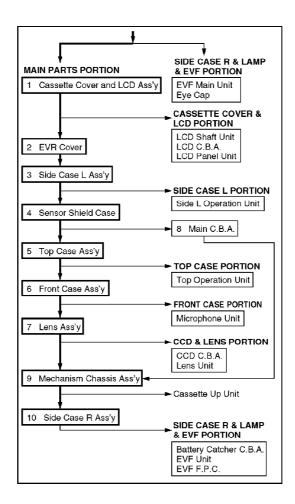
Refer to Item 3 of Schematic Diagram Notes of Schematic Diagram and Circuit Board Layout Notes, for Mark "PT."

# 7. DISASSEMBLY/ASSEMBLY PROCEDURES

## 7.1. CABINET SECTION

### 7.1.1. DISASSEMBLY FLOWCHART

This flow chart indicates the disassembly steps of the cabinet parts and the P.C.Boards in order to gain access to item (s) to be serviced. When reassembling, perform the step (s) in the reverse order. Bend, route and dress the wires as they were originally.

**Fig. D1**

**MAIN PARTS PORTION**

| | **SIDE CASE R & LAMP & EVF PORTION** |
|---|---|
| 1  Cassette Cover and LCD Ass'y | EVF Main Unit <br> Eye Cap |

**CASSETTE COVER & LCD PORTION**

LCD Shaft Unit
LCD C.B.A.
LCD Panel Unit

2  EVR Cover

3  Side Case L Ass'y

**SIDE CASE L PORTION**

Side L Operation Unit

4  Sensor Shield Case

8  Main C.B.A.

5  Top Case Ass'y

**TOP CASE PORTION**

Top Operation Unit

6  Front Case Ass'y

**FRONT CASE PORTION**

Microphone Unit

7  Lens Ass'y

**CCD & LENS PORTION**

CCD C.B.A.
Lens Unit

9  Mechanism Chassis Ass'y

Cassette Up Unit

10  Side Case R Ass'y

**SIDE CASE R & LAMP & EVF PORTION**

Battery Catcher C.B.A.
EVF Unit
EVF F.P.C.

**Note:**

1. **When removing the cabinet, work with care so as not to break the Locking Tabs.**

2. **Place a cloth or some other soft material under the P.C. Boards or Unit to prevent damage.**

3. **When reinstalling, ensure that the connectors are connected and electrical components have not been damaged.**

4. **Do not supply power to the unit during disassembly and reassembly.**

**7.1.2. Disassembly Method**

## 7.2. MECHANISM SECTION

**7.2.1. Disassembly Method**

This procedure starts with the condition that the cabinet parts and Main C.B.A. have been removed.
When reassembling, perform the step(s) in the reverse order.
**Perform all disassembly and alignments procedures in STOP Position except disassembly and alignment procedures which have the special Notes.**

| STEP LOC. No. | Prior Step (s) | Part | Fig. No. | Remove |
|---|---|---|---|---|
| ① | - | Cassette Up Unit | DM3-1,2 | 2 ⓛ, 2(L-1) |
| ② | - | Cylinder Unit | DM4-1 | 3 ⓛ, Hooking Portion |
| ③ | - | Not used | - | - |
| ④ | - | Not used | - | - |
| ⑤ | 2 | Bulge Chip | DM4-2 | ⓛ |
| ⑥ | - | P.C.B. Angle | DM5 | ⓛ |
| ⑦ | - | Mechanism F.P.C. Unit | DM6-1,2 | 4 ⓛ, Hooking Portion, double-sided adhesive tape, Unsolder Gear Alignment (x1) |
| ⑧ | 1,9 | Tension Unit | DM7-1,2 | ⓛ, Hooking Portion |
| ⑨ | 1,8 | Reel Table Unit | DM7-1,2 | ⓛ, ⓛ |
| ⑩ | 1,8,9 | Rev Clutch | DM8 | ⓛ |
| ⑪ | 1 | Take Gear | DM9-1,2 | (L-1) |
| ⑫ | 1,11 | Rev Brake Arm Unit | DM9-1,2 | ⓛ, Hooking Portion |
| ⑬ | - | A/C Head Unit | DM10 | ⓛ, Unsolder |
| ⑭ | - | Capstan Belt | DM11 | - |
| ⑮ | 6,13,14 | Capstan Unit | DM12 | 3 ⓛ |
| ⑯ | 1,6,7,11,12,14 | Idler Arm Unit | DM13 | ⓛ |
| ⑰ | 2 | Mechanism Support Angle | DM14 | ⓛ |
| ⑱ | 1 | Reduction Gear B | DM15 | ⓛ |
| ⑲ | - | Reduction Gear A | DM16 | ⓛ |
| ⑳ | 1,18 | Reduction Gear Unit | DM16 | 2 ⓛ |
| ㉑ | 1 | Pinch Arm Unit | DM17 | ⓛ |
| ㉒ | - | Not used | - | - |
| ㉓ | - | Not used | - | - |
| ㉔ | 1,17 | Takeup Post Unit | DM18-1,2 | ⓛ |
| ㉕ | 1 | Supply Post Unit | DM18-1,2 | ⓛ |
| ㉖ | - | Impedance Roller Unit | DM19-1,2 | ⓛ |
| ㉗ | 1,2,13,24,25 | Loading Base Unit | DM19-1,2 | 4 ⓛ |
| ㉘ | 1,2,8,9,13,24,25,27 | Takeup Loading Arm Unit | DM20 | Gear Alignment (x1) |
| ㉙ | 1,2,8,9,13,24,25,27 | Supply Loading Arm Unit | DM21-1,2,3 | Gear Alignment (x2) |
| ㉚ | 8,9,19 | Loading Motor Unit | DM22 | 2 ⓛ |
| ㉛ | 1,2,8,9,10,18,19,20,24,25,27,29,30 | Main Cam Unit | DM22 | - |
| ㉜ | 1,2,8,9,10,18,19,20,24,25,27,29,30,31 | Pinch Toggle | DM22 | - |

↑ A ↑ B ↑ C ↑ D ↑ E

**How to read chart shown above:**
A: Order of Procedure steps.
When reassembling, perform steps(s) in reverse order.
These numbers are also used as the identification
(location) No. of parts in Figures.
B: Steps to be completed prior to the current step.
C: Part to be removed or installed.
D: Fig. No. showing Procedure or Part Location.
E: Identification of part to be removed, unhooked, unlocked,
released, unplugged, unclamped, or unsoldered.
2 ⓛ = 2 Screws ⓛ, 2(L-1) =2 Looking Tabs (L-1)

**CAUTION:**
a. Use a wrist strap to provide ESD protection while
disassembling or assembling.
b. Removed Cut Washer is not reusable. If removed, install
a new one.
Following Cut Washers are to be used:
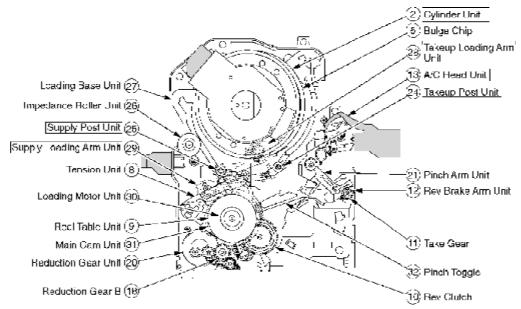
| Ref. No. | Part No. |
|---|---|
| ⓛ | VMXW0217 |
| ⓛ | VMXW0213 |
| ⓛ | VMX2026 |

## 7.2.2. Inner Parts Location
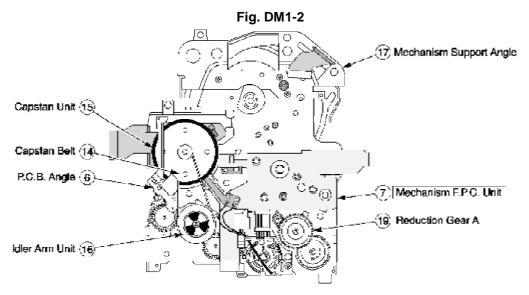
**Note:**
BOX indicates alignment (Gear alignment or Tape Interchangeability adjustment) required when a part is replaced.

### 7.2.2.1. TOP VIEW

**Fig. DM1-1**

Fig. DM1-2

- Loading Base Unit (27)
- Impedance Roller Unit (26)
- Supply Post Unit (26)
- Supply Loading Arm Unit (29)
- Tension Unit (8)
- Loading Motor Unit (30)
- Reel Table Unit (9)
- Main Cam Unit (31)
- Reduction Gear Unit (20)
- Reduction Gear B (18)

- (2) Cylinder Unit
- (5) Bulge Chip
- (23) Takeup Loading Arm Unit
- (13) A/C Head Unit
- (24) Takeup Post Unit
- (21) Pinch Arm Unit
- (12) Rev Brake Arm Unit
- (11) Take Gear
- (32) Pinch Toggle
- (10) Rev Clutch

## 7.2.2.2. BOTTOM VIEW

**Fig. DM1-2**



- Capstan Unit (15)
- Capstan Belt (14)
- P.C.B. Angle (6)
- Idler Arm Unit (16)

- (17) Mechanism Support Angle
- (7) Mechanism F.P.C. Unit
- (19) Reduction Gear A

## 7.2.3. STOP Position Confirmation

**Fig. DM2**

Check the following alignment points to confirm that the Mechanism is in STOP Position from the Top and Bottom View.

**Top View**

**EJECT Position**

Main Cam Unit | Mode Select Switch | Eject Lever

**STOP Position**

Line Up

Main Cam Unit | Mode Select Switch | Eject Lever

**Note:**
Slide the Eject Lever when installing the Cassette Up Unit.

**Bottom View**

Loading Base Unit

**STOP Position**

Main Cam Unit

Supply Loading Arm Unit

| Through Hole | | |
|---|---|---|
| Chassis | | |
| Supply Loading Arm Unit | | |
| Loading Base Unit | | |

| Through Hole | | |
|---|---|---|
| Chassis | | |
| Main Cam Unit | | |
| Supply Loading Arm Unit | | |

**EJECT Position**

Main Cam Unit

Supply Loading Arm Unit

| Through Hole | | |
|---|---|---|
| Chassis | | |
| Supply Loading Arm Unit | | |
| Loading Base Unit | | |

| | | |
|---|---|---|
| Chassis | | |
| Main Cam Unit | | |
| Supply Loading Arm Unit | | |

**STOP/EJECT Position**

Takeup Loading Arm Unit

Loading Gear

| Through Hole | | |
|---|---|---|
| Chassis | | |
| Loading Gear | | |
| Cylinder Assy | | |

| Through Hole | | |
|---|---|---|
| Chassis | | |
| Loading Gear | | |
| Cylinder Assy | | |

**Perform all disassembly and alignments procedures in STOP Position except disassembly and alignment procedures which have the special Notes.**

## 7.2.4. Cassette Up Unit

**Fig. DM3-1-1**

**Note:**

1. The replacement Cassette Up Unit is supplied with a Lock Screw installed as shown below.
**Make sure to remove this Lock Screw when replacing the Cassette Up Unit.**

**Fig. DM3-1-2**

**CAUTION:**

The tab of the Cassette Up Unit has been bent when installed.
When removing the Cassette Up Unit, using pliers, straighten the tab 45° to remove the Cassette Up Unit.

<Bottom View>

Tab of Cassette Up Unit

Mechanism F.P.C. Unit

Cassette Up Unit

tab

pliers

45°

**Note:**
Be careful not to break the tab off.

**Fig. DM3-2-1**

**Reassembly Note:**
1. **Installation of the Cassette Up Unit**

> Installation is possible except when the Mechanism is in Eject Position.

(1) Before installing the Cassette Up Unit, confirm that the Eject Lever is slid as shown.

Eject Lever

Chassis

**Top View**

(2) Slide the Lock Lever. (Otherwise, the Lock Lever may damage the Cassette Down Switch when installing the Cassette Up Unit.)

Slide

Lock Lever    Cassette Down Switch

**View A**

(3) Then, Install the Cassette Up Unit while setting 2 Locking Tabs (L-1). Next, insert Pin into Hole on the Chassis.
(4) Slide the Cassette Up Unit as far as possible as indicated by the arrow. Then, tighten 2 Screws ⑥③②.

Slide                    Slide

Cassette Up Unit

**Top View**

(5) After installing the Cassette Up Unit, confirm that the Lock Lever is on the left of the Eject Lever as shown.

Eject Lever

Lock Lever

Cassette Up Unit

**Top View**

**Fig. DM3-2-2**

CAUTION:
When installing the Cassette Up Unit, bend the tab
45° again using pliers as shown.

tab

pliers

45°

Note:
Be careful not to break the tab off.

## 7.2.5. Cylinder Unit

**Fig. DM4-1-1**

**Note:**
1. Use extreme care when removing the Cylinder Unit. Do not touch the Video Heads during servicing.
2. **Removal of the Cylinder Unit**
(1) Unhook the Cylinder/Head Amp F.P.C. while lifting up the Cylinder Unit slightly and remove it from the Hole A.

**Reassembly Note:**
1. Use extreme care when replacing the Cylinder Unit. Do not touch the Video Heads during servicing.
2. **Installation of the Cylinder Unit**
(1) Insert the Cylinder/Head Amp F.P.C. to Hole A first.
(2) Install the Cylinder Unit so that 2 Holes on the Lower Cylinder Unit surface fit over the 2 Guide Pins on the Chassis. Then, tighten 3 Screws ⓖ₃₅.
(3) Hook the Cylinder/Head Amp F.P.C. as shown.



3. **Adjustment of the Cylinder Unit**
(1) After replacing, perform the "Tape Interchangeability Adjustment" procedures.

**Fig. DM4-1-2**

Fig. DM4-2

## 7.2.6. Bugle Chip



(Cylinder Unit)

⑤ Bulge Chip

Earth Contact
**See CAUTION below.**

Contact Spring

Contact Plate

**Note:**
1. Use extreme care when removing the Bulge Chip.
   Do not touch the Video Heads during servicing.
2. **Removal of the Contact Plate, Contact Spring, Earth Contact**
(1) Remove a Screw ⑭②③, then remove the Contact Plate, Contact Spring, and Earth Contact in the order.

**Reassembly Note:**
1. Use extreme care when replacing the Bulge Chip.
   Do not touch the Video Heads during servicing.
2. **Installation of the Contact Plate, Contact Spring, Earth Contact**
(1) Install the Earth Contact, Contact Spring, and Contact Plate in the order. Then, tighten a Screw ⑭②③.

Contact Plate

Contact Spring

Earth Contact

(Direction of the Earth Contact)

**Bottom View**

## 7.2.7. P.C.B. Angle

Fig. DM5

Reassembly Note:
1. **Installation of the P.C.B. Angle**
(1) Install the P.C.B. Angle so that the 2 P.C.B. Angle Holes fit over the 2 Guide Pins on the Chassis.
Work carefully so as not to damage the A/C Head/Capstan F.P.C.

Bottom View

## 7.2.8. Mechanism F.P.C Unit

**Fig. DM6-1**

**Fig. DM6-2**

**Reassembly Note:**

1. **Gear Alignment**
   **• The Mode Select Switch and the Main Cam Unit**

(1) Place the Mechanism in the **STOP Position** by rotating the Gear of Reduction Gear Unit.
(2) Before installing the Mechanism F.P.C. Unit, rotate the Mode Select Switch of Mechanism F.P.C. Unit so that Slot (A) is aligned with Slot (B).

Mechanism F.P.C. Unit
Slot (A)
Slot (B)
Mode Select Switch
**Top View**

2. **Installation of the Mechanism F.P.C. Unit**
(1) Install the Mechanism F.P.C. Unit to the bottom of the Chassis. Then, tighten 4 Screws ④⑫.
(2) Solder the Motor Leads as shown.
(3) Hook the Motor Leads and the tube to Hooking Portions together.
(4) Confirm that the Motor Leads are set correctly on the Mechanism F.P.C. Unit as shown.

double-sided adhesive tape
Motor Lead (BLACK)
Mechanism F.P.C. Unit
Motor Lead (RED)
Solder
Hooking Portion
**Bottom View**

(7) Confirm that the Mode Select Switch is in STOP Position from the Top side.

Line Up
Main Cam Unit
Mode Select Switch
STOP Position
**Top View**

## 7.2.9. Tension Unit, Reel Table Unit

**Fig. DM7-1**

**Fig. DM7-2**

**Reassembly Note:**

1. **Installation of the Reel Table Unit and the Tension Unit**

(1) Before installing the Reel Table Unit and the Tension Unit, place the Mechanism in the **Fully-loaded Position** by rotating the Gear of Reduction Gear Unit.

(2) Install a Washer ④10 onto the Loading Motor Unit first.

(3) Hook the Spring of Tension Unit to the Tension Unit as shown.



Spring of Tension Unit

Hooking Portion-1

Tension Unit

(4) Hook the Band of Tension Unit to the groove of Reel Table Unit.

(5) Install both the Reel Table Unit and Tension Unit to the Chassis so that the Pin A of Tension Unit is set into Slot A of the Main Cam Unit. Confirm that the Band of Tension Unit keeps off Projection A and B.



Reel Table Unit

Projection A

Projection B
(on the Loading Motor Unit)

Reduction Gear Unit

Band of Tension Unit

Pin A of Tension Unit

Slot A of Main Cam Unit

**Fully-loaded (Play) Position**

**Top View**

(5) Unhook the Spring of Tension Unit from Hooking Portion-1 with tweezers etc. inserted through Hole to let it hook to Hooking Portion-2 on the chassis.



Hooking Portion-1

Hooking Portion-2

Hole

tweezers

Spring

**Top View**

(6) Install Cut Washers ④19, and ④11.

## 7.2.10. Rev Clutch

**Fig. DM8**

⑩ Rev Clutch

## 7.2.11. Take Gear, Rev Brake Arm Unit

**Fig. DM9-1**



(L-1)

⑪ Take Gear

Portion A

⑫ Rev Brake Arm Unit

Spring of Rev Brake Arm Unit

Idler Arm Unit

Guide Pin

Hooking Portion

**Note:**
1. **Removal of the Rev Brake Arm Unit**
(1) Before removing, move the Idler Arm Unit aside.
(2) Remove a Cut Washer ⑩⑨ with tweezers etc.
   **Tips on removal of the Cut Washer ⑩⑨:**
   Push up one side while pushing the other side of Cut Washer.

tweezers

Rev Brake Arm Unit

tweezers

(3) Remove the Rev Brake Arm Unit after unhooking the Spring of Rev Brake Arm Unit.

**Fig. DM9-2**

**Reassembly Note:**

**1. Installation of the Rev Brake Arm Unit**
(1) Before installing the Rev Brake Arm Unit, move the Idler Arm Unit aside as indicated by the arrow.
(2) Hook the Spring of Rev Brake Arm Unit to the Hooking Portion. After hooking the Spring, confirm that Portion A of the Rev Brake Arm Unit does not pass over the Guide Pin on chassis as shown.

Chassis
Guide Pin
Rev Brake Arm Unit
Portion A
Idler Arm Unit
Spring of Rev Brake Arm Unit
Hooking Portion

**Top View**

(3) Install a Cut Washer ⑨ with tweezers.
   **Tips on installation of the Cut Washer ⑨:**
   Push down one side while pushing the other side of Cut Washer.

tweezers
Rev Brake Arm Unit
tweezers
⑨

(4) After installing, confirm that a Cut Washer ⑨ can be rotated.

**2. Installation of the Take Gear**
(1) Before installing the Take Gear, move the Idler Arm Unit aside as indicated by the arrow.
(2) Install the Take Gear while rotating so it engages with Gear A so as not to cause damage.
   Then, confirm that Locking Tab (L-1) is set.
   **Note:** Use extreme care when installing the Take Gear. If Locking Tab (L-1) is broken, install a new Take Gear.

Take Gear
Gear A
(L-1)
Idler Arm Unit

**Top View**

## 7.2.12. A/C Head Unit

**Fig. DM10**

**Reassembly Note:**

1. **Installation of the A/C Head Unit**
(1) Install A/C Head Unit so that 2 Guide Pins are in holes on the A/C Head Unit.
(2) Tighten a Screw ⑳(1.0 ~ 1.3 kgf•cm) in the approximate center of the hole.

**Top View**

2. **Adjustment of the A/C Head Unit**
(1) After replacing, perform the "Tape Interchangeability Adjustment" procedures.

## 7.2.13. Capstan Belt

**Fig. DM11**

**Reassembly Note:**
1. **Tips on Installation of the Capstan Belt**
(1) Hook the Capstan Belt to Portion A of Capstan Unit at first as shown.
(2) Hook the Capstan Belt to Portion B of Idler Arm Unit.
(3) Rotate the Idler Arm Unit as indicated by the arrow (counterclockwise) and set it completely.

## 7.2.14. Capstan Unit

**Fig. DM12**

Pinch Roller →

⑮ Capstan Unit
Projection A

Takeup Boat Unit
Capstan Unit
407-2
407-1
Pinch Roller

**Top View**

**Half Loaded Position**

---
**CAUTION:**
**Do not touch the Pinch Roller.**
---

1. **Removal of the Capstan Unit**
(1) To remove, put the mechanism in the **half loaded position** to gain access to a Screw 407-2 as shown by rotating the Gear of Reduction Gear Unit. Then, remove a Screw 407-2.

**Reassembly Note:**
1. Since the Capstan Unit has already been adjusted at the factory, do not try to adjust the FG Head. The Capstan Unit is supplied as a complete assembly as a replacement part.
2. **Installation of the Capstan Unit**
(1) Before installing the Capstan Unit, put the mechanism in the **half loaded position** to gain access to a Screw 407-2 for installing by rotating the Gear of Reduction Gear Unit.
(2) Install the Capstan Unit to the Chassis so that Projection A fit in the Slot on the Chassis.
(3) Tighten 2 Screws 407-1. Then, tighten a Screw 407-2.

Takeup Boat Unit
Capstan Unit
407-2
407-1
Slot
Pinch Roller

**Half Loaded Position**

**Top View**

## 7.2.15. Idle Arm Unit

**Fig. DM13**

1. **Removal of the Idler Arm Unit**
(1) To remove the Idler Arm Unit, pull the Idler Arm Unit slightly from the Chassis to release Pin A from Hole A. Then, remove the Idler Arm Unit while turning as indicated by the arrow.

**Reassembly Note:**
1. **Installation of the Idler Arm Unit**
(1) Set the Idler Arm Unit so that Portion B is in Hole B as shown.
(2) Turn the Idler Arm Unit slightly as indicated by arrow to set Pin A in Hole A.

**Bottom View**

(3) Install a Cut Washer ⑲.

## 7.2.16. Mechanism Support Angle

**Fig. DM14**

## 7.2.17. Reduction Gear B

**Fig. DM15**



**Reassembly Note:**
1. **Installation of the Reduction Gear B**
(1) Install the Reduction Gear B while rotating so it engages with the Gear of Main Cam Unit as shown.

**Top View**

(2) Confirm that the Mechanism can be loaded or unloaded by rotating the Gear of Reduction Gear Unit.
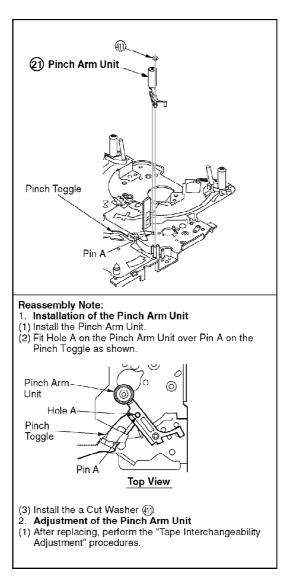
## 7.2.18. Reduction Gear A, Reduction Gear Unit

**Fig. DM16**

**Indication on Gear of Reduction Gear Unit**
The arrow indicated on the Gear of Reduction Gear Unit shows the direction to load.

**Bottom View**

**Reassembly Note:**
1. **Installation of the Reduction Gear Unit**
(1) Install the Reduction Gear Unit so that Guide Pin fits in the Slot on the Chassis.
    Then, tighten 2 Screws ⑱.

## 7.2.19. Pinch Arm Unit

**Fig. DM17**

㉑ Pinch Arm Unit ⑪

Pinch Toggle

Pin A

**Reassembly Note:**
1. **Installation of the Pinch Arm Unit**
(1) Install the Pinch Arm Unit.
(2) Fit Hole A on the Pinch Arm Unit over Pin A on the
    Pinch Toggle as shown.

Pinch Arm
Unit

Hole A

Pinch
Toggle

Pin A

**Top View**

(3) Install the a Cut Washer ⑪.
2. **Adjustment of the Pinch Arm Unit**
(1) After replacing, perform the "Tape Interchangeability
    Adjustment" procedures.

## 7.2.20. Takeup Post Unit, Supply Post Unit

**Fig. DM18-1**

㉕ Supply Post Unit

Supply Loading Arm Unit

㉔ Takeup Post Unit

Takeup Loading Arm Unit

Position "A"

⑯

㊽

Position "B"

Main Cam Unit

**Note:**
1. **Removal of the Supply Post Unit and the Takeup Post Unit**
(1) Load the Mechanism to the **Loading Position** to gain access to a Screw ㊽ and ⑯ for removal by rotating the Main Cam Unit.
(2) Then, remove a Screw ㊽ and ⑯.
(3) Put the arm of the Supply Loading Arm Unit and the Takeup Loading Arm Unit aside.
(4) Slide back the Supply Post Unit and the Takeup Post Unit to Position "A" and "B" and remove.

**Fig. DM18-2**

**Reassembly Note:**

1. **Installation of the Supply Post Unit and the Takeup Post Unit**

(1) Confirm that the end of the arm (the threaded hole) of Supply Loading Arm Unit and the end of the arm (the threaded hole) of Takeup Loading Arm Unit are in the end of the guide slots.

(2) Install the Supply Post Unit and the Takeup Post Unit into Position "A" and "B" while being careful of the direction of the Supply Post Unit and the Takeup Post Unit.

(3) Slide the Supply Post Unit and the Takeup Post Unit to the end of guide slots as shown.

The end of the guide slots

Holes

Loading Base Unit

Supply Post Unit

Takeup Post Unit

Position "A"     Position "B"

**Top View**
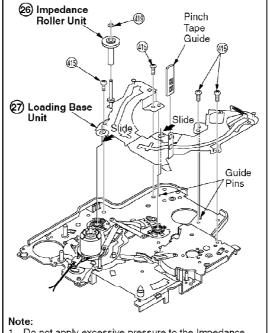
(4) Align the Hole of the Supply Loading Arm Unit with the Threaded Hole of the Supply Post Unit. Do the Same with the Takeup Post Unit.

(5) Tighten a Screw ⑤④⑩ and ④①⑥.

**Caution:**
Be careful of the following when tightening a Screw ⑤④⑩ and ④①⑥.
1. Be sure to tighten screws straight.
2. Do not over tighten screws.
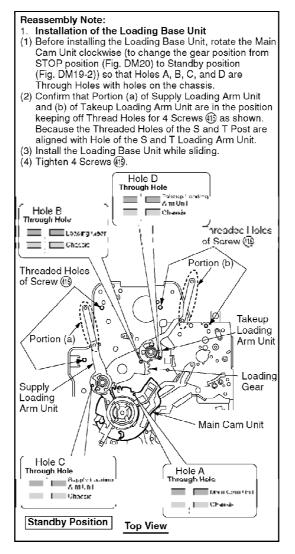
2. **Adjustment of the Supply Boat Unit and Takeup Boat Unit**

(1) After replacing, perform the "Tape Interchangeability Adjustment" procedures.

## 7.2.21. Impedance Roller Unit, Loading Base Unit

**Fig. DM19-1**

㉖ **Impedance Roller Unit**

Pinch Tape Guide

㉗ **Loading Base Unit**

Slide

Slide

Guide Pins
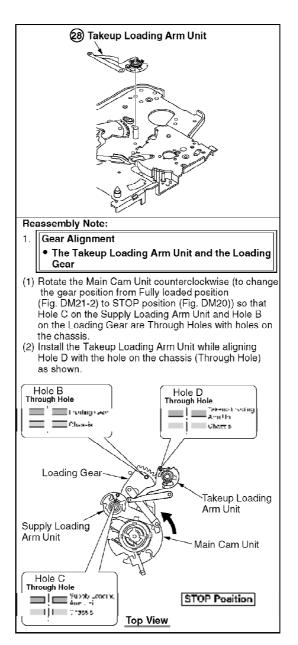
**Note:**
1. Do not apply excessive pressure to the Impedance Roller Unit.
2. **Removal of the Loading Base Unit**
   Do not apply excessive pressure to the Loading Base Unit so as not to bend.
(1) When removing the Loading Base Unit, remove 4 Screws ⑭⑮.
(2) Release 2 Guide Pins while lifting up the Loading Base Unit slightly. Then, remove the Loading Base Unit after sliding as indicated by the arrow.

**Fig. DM19-2**

**Reassembly Note:**
1. **Installation of the Loading Base Unit**
(1) Before installing the Loading Base Unit, rotate the Main Cam Unit clockwise (to change the gear position from STOP position (Fig. DM20) to Standby position (Fig. DM19-2)) so that Holes A, B, C, and D are Through Holes with holes on the chassis.
(2) Confirm that Portion (a) of Supply Loading Arm Unit and (b) of Takeup Loading Arm Unit are in the position keeping off Thread Holes for 4 Screws ④⑮ as shown. Because the Threaded Holes of the S and T Post are aligned with Hole of the S and T Loading Arm Unit.
(3) Install the Loading Base Unit while sliding.
(4) Tighten 4 Screws ④⑮.

**Hole D**
Through Hole
Takeup Loading Arm Unit
Chassis

**Hole B**
Through Hole
Loading Gear
Chassis

Threaded Holes of Screw ④⑮

Portion (b)

Threaded Holes of Screw ④⑮

Portion (a)

Takeup Loading Arm Unit

Loading Gear

Supply Loading Arm Unit

Main Cam Unit

**Hole C**
Through Hole
Supply Loading Arm Unit
Chassis

**Hole A**
Through Hole
Main Cam Unit
Chassis

| Standby Position | **Top View** |

## 7.2.22. Takeup Loading Arm Unit

**Fig. DM20**

**㉘ Takeup Loading Arm Unit**

**Reassembly Note:**

1. **Gear Alignment**
   • **The Takeup Loading Arm Unit and the Loading Gear**

(1) Rotate the Main Cam Unit counterclockwise (to change the gear position from Fully loaded position (Fig. DM21-2) to STOP position (Fig. DM20)) so that Hole C on the Supply Loading Arm Unit and Hole B on the Loading Gear are Through Holes with holes on the chassis.

(2) Install the Takeup Loading Arm Unit while aligning Hole D with the hole on the chassis (Through Hole) as shown.

Hole B
Through Hole

Hole D
Through Hole

Loading Gear

Takeup Loading Arm Unit

Supply Loading Arm Unit

Main Cam Unit

Hole C
Through Hole

**STOP Position**

**Top View**

## 7.2.23. Supply Loading Arm Unit

**Fig. DM21-1**

**Fig. DM21-2**

**Reassembly Note:**

1. | **Gear Alignments** |
   |---|
   | • **The Supply Loading Arm Unit and the Loading Gear** |
   | • **The Supply Loading Arm Unit and the Main Cam Unit** |

(1) Confirm that Hole A on the Main Cam Unit is a Through Hole with a hole on the chassis by rotating the Main Cam Unit clockwise as much as possible. Also, make sure the Loading Gear makes contact with contact point.

(2) Set the Supply Loading Arm Unit so that the last tooth of its lower gear is just outside the last tooth of the Loading Gear as shown.

(3) Turn the Main Cam Unit counterclockwise first ①, then turn Supply Loading Arm Unit clockwise slightly ② so that the last tooth on upper gear of Supply Loading Arm Unit is just outside tooth (a) of Main Cam Unit.

**Fig. DM21-3**

(4) Confirm that Hole A, B, and C are Through Holes by rotating the Main Cam Unit.

**Top View**

# 7.2.24. Loading Motor Unit, Main Cam Unit, Pinch Toggle

**Fig. DM22**



**Reassembly Note:**
1. Do not pull the Eject Lever upward so as not to bend it.
2. **Installation of the Pinch Toggle and the Main Cam Unit**
(1) Install the Pinch Toggle so that the Pinch Toggle Hole fit over the Guide Pin.
(2) Install the Main Cam Unit so that Guide Pin fits in the Main Cam Unit Hole.
3. **Installation of the Loading Motor Unit**
(1) Install the Loading Motor Unit the Guide Pin fits in Hole on chassis.
(2) Tighten 2 Screws ⑭. If the 2 Screws ⑭ can not reach Threaded Holes, push down on the upper side of the Loading Motor Unit to tighten 2 Screws ⑭.

# 8. ADJUSTMENT PROCEDURES

## 8.1. SERVICE FIXTURES& TOOLS

| | | |
|---|---|---|
| VHS-C Alignment Tape   VFMS0004H6C | VHS-C Alignment Tape   VFMW0001C | Molytone Grease   VFK1024 |
| Plier for Non ZIF Connector LSVQ0028 | Grease   VFKS0081 | Lock Screw   VHDW0125 |
| Head Cleaning Stick   VFK27 | Extension Cable 12P   VUVS0007 | Extension Cable 22P   VUVS0012 |

| | |
|---|---|
| Extension Cable 28P   VUVS0015 | A.W.B. Adjustment Fixture   VFKW0066 |

**TP Board**

| TP Adjustment Cable 40P LSUP0005A | TP Adjustment P.C.B. 40P VFKW0123B | TP Clip 36P LSUP0005C |
|---|---|---|

**CAAS Kit   VFKW1000**

Interface Box
VFKW1000AA

Camera Connecting Cable
VFKW1000B

25pin RS-232C Cable
VFKW1000D

9pin RS-232C Cable
VFKW1000C

## 8.2. MECHANICAL ADJUSTMENT

### 8.2.1. CLEANING PROCEDURE FOR THE UPPER CYLINDER UNIT

**1. While slowly turning the Upper Cylinder Unit counterclockwise by hand, gently rub the Video Heads with a Head Cleaning Stick (VFK27) moistened with Isopropyl Alcohol 91 %.**

Fig. M1



**Note:**

**A. Do not rub vertically or apply excess pressure to the Video Heads.**

**Do not turn the Upper Cylinder Unit clockwise while cleaning.**

**B. After cleaning, use a Dry Head Cleaning Stick (VFK27) to remove any Isopropyl Alcohol 91 % remaining on the cylinder tape path. Otherwise, tape damage will occur.**
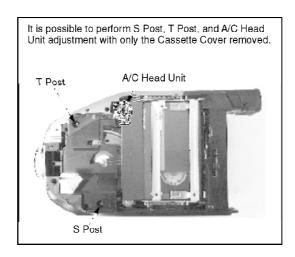
### 8.2.2. ADJUSTMENT PROCEDURES

#### 8.2.2.1. TAPE INTERCHANGEABILITY ADJUSTMENT

Before perform these Adjustment/Confirmation procedures, be sure to complete following items.

**1. Connect the TP Board to S301 on the camcorder. Refer to "HOW TO USE TP BOARD" in "SERVICE NOTES."**

Fig. M2-1

It is possible to perform S Post, T Post, and A/C Head Unit adjustment with only the Cassette Cover removed.

T Post      A/C Head Unit

S Post

## 2. Put the unit into the service mode "I. TRACKING FIX" to defeat Auto Tracking. Refer to "SERVICE MODE SPECIFICATION (SELF-DIAGNOSTIC SYSTEM)" in "SERVICE NOTES."

## 3. Remove the Cassette Lid Cover from the Cassette Tape or the Alignment Tape.

**Fig. M2-2**



Release Projections

Cassette Lid Cover

## Equipment Required:

   **Dual Trace Oscilloscope**
   **VHS-C Alignment Tape (VFMS0004H6C)**
   **VHS-C Alignment Tape (VFMW0001C)**
   **Screwdriver Set (Purchase Locally)**
   **TP Board**
   **TP Adjustment Cable 40P (LSUP0005A)**
   **TP Adjustment P.C.B. 40P (VFKW0123B)**
   **TP Clip 36P (LSUP0005C)**

**8.2.2.1.1. ENVELOPE OUTPUT ADJUSTMENT**
**The height of the S and T Posts replacement part is preset at the factory.**

## Purpose:

   **To achieve a satisfactory picture and secure precise tracking.**

## Symptom of Misadjustment:

If the envelope is output poorly, much noise will appear in the picture. Then the tracking will lose precision and the playback picture will be distorted by any slight variation of the tracking control circuit.

1. Put the unit into the service mode "I. Tracking Fix" to defeat Auto Tracking. Refer to "SERVICE MODE SPECIFICATION (SELF-DIAGNOSTIC SYSTEM)" in "SERVICE NOTES."

2. Connect the oscilloscope to Pin 32 (Envelope signal) on the TP Adjustment P.C.B. Use Pin 33 (Head Switch signal) as a trigger.

3. Play back the VHS-C Alignment Tape (VFMS0004H6C).

4. Confirm that the RF envelope is flat enough. If not, with Flat Headed (—) Screwdriver, adjust S and T post height so that the envelope waveform becomes as flat as possible (No envelope drop). If the envelope drop appears on the left-halfofthewaveform, adjust S post height. If the envelope drop appears on the right-half of the waveform, adjust T post height.
CAUTION: Do not apply excessive pressure onto the S and T Posts when adjusting S and T post height.

**Fig. M3-1**

Before Adjustment
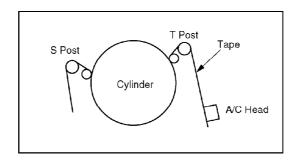


**Fig. M3-2**

After Adjustment

**Note:**

It will be possible to confirm step 4) after performing the following steps.

   A. Exit the "I. TRACKING FIX" mode, then skip the "J. PG SHIFTER" mode to enter other modes (except these 2). Or, close the service mode.

   B. Press the Tracking Control Up or Down button on the camcorder. Make sure that the envelope waveform remains flat. If not, readjust S and/or T post heights.

5. After adjustment, confirm that the tape travels without curing at S and T posts.
   If curing is apparent, readjust the height of posts.

**Fig. M3-3**



### 8.2.2.1.2. A/C HEAD HEIGHT ADJUSTMENT
The height of the A/C Head replacement part is preset at the factory.

**Purpose:**

   To be sure the tape runs properly along the Control Head.

**Symptom of Misadjustment:**

   If the control signal is not properly picked up, Servo Operation can not be achieved.

1. Connect the oscilloscope to Pin 25 (PB Control signal) on the TP Adjustment P.C.B.

2. Play back the VHS-C Alignment Tape (VFMW0001C)

3. Confirm that the Sub Control Signal is 500 mV±200 mV. If not,

**slightly and equally adjust Screw A, Screw B, and Screw C on the A/C Head Unit to achieve the sub control signal level of 500 mV± 200 mV.**

**(Sub Control Signal level will decrease when rotating screws clockwise, and increase when rotating screws counterclockwise.)**

**Fig. M4-1**



500 mV±200 mV

Sub Control Signal

Pin 25 on TP Adjustment P.C.B.

**Fig. M4-2**



Screw C (Azimuth)

Screw A (Height)

Screw B (Tilt)
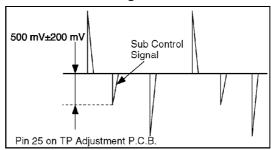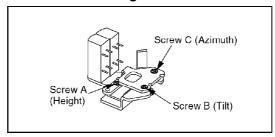
**8.2.2.1.3. A/C HEAD AZIMUTH ADJUSTMENT**
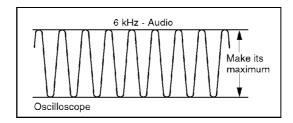
**Purpose:**

To adjust the position and height of the A/C Head so that it meets the tape tracks properly.

**Symptom of Misadjustment:**

If the position of the A/C Head is not properly adjusted, the Audio S/N Ratio will be poor.

1. Connect the Audio/Video Cable on the camcorder.

2. Connect the oscilloscope to audio output jack.

3. Playback the VHS-C Alignment Tape (VFMS0004H6C).

4. Adjust Screw C (Azimuth) on the A/C Head Unit so that the output level is at maximum.

**Fig. M5**

6 kHz - Audio

Make its maximum

Oscilloscope

**5. Confirm and readjust the A/C Head height.**

**6. Confirm and readjust Screw C (Azimuth) on the A/C Head so that the output audio becomes is maximum.**

8.2.2.1.4. A/C HEAD HORIZONTAL POSITION ADJUSTMENT

**Purpose:**
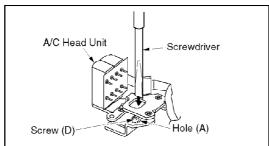
**To adjust the Horizontal Position of the A/C Head.**

**Symptom of Misadjustment:**

**If the Horizontal Position of the A/C Head is not properly adjusted, maximum envelope can not be obtained at the Neutral Position of the Tracking Control Circuit.**
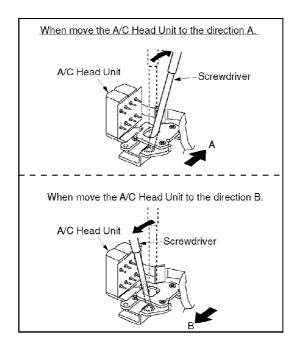
**1. Put the unit into the service mode "I. TRACKING FIX" to defeat Auto Tracking. Refer to "SERVICE MODE SPECIFICATION (SELF-DIAGNOSTIC SYSTEM)" in "SERVICE NOTES."**

**2. Connect the oscilloscope to Pin 32 (Envelope signal) on the TP Adjustment P.C.B. Use Pin 33 (Head Switch signal) as a trigger.**

**3. Play back the VHS-C Alignment Tape (VFMS0004H6C).**

**4. Set the Screwdriver into the Hole (A) as shown.**

**Fig. M6-1**



A/C Head Unit — Screwdriver

Screw (D) — Hole (A)

**5. Slowly move the A/C Head Unit to the direction "A" or "B" as shown so that the envelope is at maximum.**

**Fig. M6-2**

When move the A/C Head Unit to the direction A.

A/C Head Unit — Screwdriver

A

When move the A/C Head Unit to the direction B.

A/C Head Unit — Screwdriver

B

6. **To find the center of the maximum period of the envelope, move the A/C Head Unit to confirm the limits on either side of the maximum period.**

**Note:**

**It will be possible to confirm step 6) after performing the following steps.**

1. **Exit the "I. TRACKING FIX" mode, then skip the "J. PG SHIFTER" mode to enter other modes (except these 2). Or, close the service mode.**

2. **Press the Tracking Control Up Button on the camcorder several times (count the number of times pressed) until the maximum envelope is reduced to 1/2.**

3. **Press the Tracking Control Down Button on the camcorder several times (count the number of times pressed) until the maximum envelope is reduced to 1/2.**

4. **If the number of pressing is not the same, readjust A/C Head horizontal position.**

8.2.2.1.5. CONFIRMATION OF ENVELOPE OUTPUT

**Purpose:**

**To achieve a satisfactory picture and secure precise tracking.**

**Symptom of Misadjustment:**

**If the envelope is output poorly, much noise will appear in the picture. Then the tracking will lose precision and the playback picture will be distorted by any slight variation of the tracking control circuit.**

1. **Connect the oscilloscope to Pin 32 (Envelope signal) on the TP Adjustment P.C.B. Use Pin 33 (Head Switch signal) as a trigger.**

2. **Play back the VHS-C Alignment Tape (VFMS0004H6C).**

3. **Confirm that the envelope waveform is as flat as possible (V1/ V(max) 0.7).**
   **If adjustment is required, adjust S Post and/or T Post with "—" Screwdriver. Refer to "<span style="color:red">ENVELOPE OUTPUT ADJUSTMENT</span>."**

**Fig. M7**



## 8.3. ELECTRICAL ADJUSTMENT

### 8.3.1. INITIAL GUIDELINE

The table below shows which adjustments are necessary according to the unit parts and individual parts to be replaced. Make sure to perform these adjustments shown below as necessary.

| Adjustment Item | | MAIN C.B.A. | IC301(DIGITAL SIGNAL PROCESSOR) | IC306(EEPROM) | IC501(CAMERA/DSC MICROCONTROLLER) | IC309(HALL AMP) | IC602(TIMING SIGNAL GENERATOR) | IC605(SAMPLING HOLD&AGC CONTROL) | IC3001(LUMINANCE/CHROMINANCE SIGNAL PROCESS) | IC3002(TWIN CCD 1H DELAY) | X601 | BATTERY CATCHER C.B.A. | IC901(EVF SIGNAL PROCESS) | LCD C.B.A. | IC9001(RGB SIGNAL PROCESS/LCD PANEL INDICATOR CONTROL) | IC9002(OP. AMP) | CCD C.B.A. | LENS UNIT | CYLINDER UNIT | L3031, C3157, D3006 (4.84 MHz Trap Circuit) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Camera Section | Frequency Adjustment | ○ | | | | | ○ | | | | ○ | | | | | | | | | |
| | VCO Adjustment | ○ | ○ | | | | | | ○ | | | | | | | | | | | |
| | Burst/Sync Level Adjustment | ○ | ○ | | | | | | ○ | | | | | | | | | | | |
| | Hall Amp Adjustment | ○ | ○ | ○ | ○ | | ○ | | | | | | | | | | | ○ | | |
| | Auto Focus Adjustment | ○ | ○ | | | | | | | | | | | | | | | ○ | | |
| | A/D Input Level Adjustment | ○ | ○ | | | | | ○ | | | | | | | | | ○ | | | |
| | Iris PWM Adjustment | ○ | ○ | ○ | | ○ | | ○ | | | | | | | | | ○ | ○ | | |
| | YH Level Adjustment | ○ | ○ | ○ | | | | ○ | | | | | | | | | ○ | | | |
| | Auto white balance Adjustment | ○ | ○ | ○ | | | | ○ | | | | | | | | | ○ | | | |
| VCR Section | Playback Video Level Adjustment | ○ | ○ | | | | | | ○ | | | | | | | | | | | |
| | Sync Tip Frequency Adjustment | ○ | ○ | | | | | | ○ | | | | | | | | | | | |
| | Deviation Adjustment | ○ | ○ | | | | | | ○ | | | | | | | | | | | |
| | Rec Level Adjustment | ○ | ○ | | | | | | ○ | | | | | | | | | | | |
| | Comb Filter Gain Adjustment | ○ | ○ | | | | | | ○ | ○ | | | | | | | | | | |
| | YNR Adjustment | ○ | ○ | | | | | | ○ | | | | | | | | | | | |
| | Head Switching Position Adjustment | ○ | ○ | | | | | | | | | | | | | | | | ○ | |
| | 4.84 MHz Trap Adjustment | ○ | ○ | | | | | | | | | | | | | | | | | ○ |
| EVF Section | PLL Adjustment | ○ | ○ | | | | | | | | | ○ | ○ | | | | | | | |
| | Contrast (V1/V2/V3) Adjustment | ○ | ○ | | | | | | | | | ○ | ○ | | | | | | | |
| | Brightness (V1/V2/V3) Adjustment | ○ | ○ | | | | | | | | | ○ | ○ | | | | | | | |
| | Black Limiter Adjustment | ○ | ○ | | | | | | | | | ○ | ○ | | | | | | | |
| | VCOM Level Adjustment | ○ | ○ | | | | | | | | | ○ | ○ | | | | | | | |
| LCD Section | PLL Adjustment | ○ | ○ | | | | | | | | | | | | ○ | ○ | | | | |
| | Pedestal Level Adjustment | ○ | ○ | | | | | | | | | | | | ○ | ○ | | | | |
| | Contrast Adjustment | ○ | ○ | | | | | | | | | | | | ○ | ○ | | | | |
| | RB Sub Pedestal Adjustment | ○ | ○ | | | | | | | | | | | | ○ | ○ | | | | |
| | RB Sub Contrast Adjustment | ○ | ○ | | | | | | | | | | | | ○ | ○ | | | | |
| | Color Gain Adjustment | ○ | ○ | | | | | | | | | | | | ○ | ○ | | | | |
| | VCOM level Adjustment | ○ | ○ | | | | | | | | | | | | ○ | ○ | ○ | | | |
| | Common bias Adjustment | ○ | ○ | | | | | | | | | | | | ○ | ○ | | | | |

**Note:** ○ : Adjustment Item

## 8.3.2. TEST EQUIPMENT

To do all of the Electrical Adjustment, the following equipments are required.

# 1. Dual-Trace Oscilloscope
   Voltage Range: 0.001 to 50 V/Div.
   Frequency Range: DC to 50 MHz
   Probes: 10:1, 1:1

# 2. DVM (Digital Volt Meter)

# 3. Frequency Counter

# 4. Color TV Monitor

# 5. VHS-C Alignment Tape (VFMS0004H6C)

**6. Vectorscope**

**7. Plastic Tip Driver**

**8. Audio Video Cable (VJAW0032)**

**9. Power Supply for Interface Box.**

**10. Personal Computer**
   **PC: IBM PC/AT or compatible**
   **OS: Microsoft ⑥ Windows ⑥ 95 - Windows ⑥ XP**
   **CPU: 486 or higher**
   **Drive: 3.5 inch 1.44 MB floppy disk drive**
   **Port: D-Sub-9-pin Serial or D-Sub-25-pin Serial**
   **Monitor: VGA Color**

**11. PC-EVR Adjustment Program (VF0C2003DV10)**
   **Note:**
   **Ask latest version when placing order for PC-EVR Adjustment program.**

**12. CAAS Kit (VFKW1000)**
   **Interface Box (VFKW1000AA)**
   **Camera Connecting Cable (VFKW1000B)**
   **9 Pin RS-232C Cable (VFKW1000C)**
   **25 Pin RS-232C Cable (VFKW1000D)**

**13. TP Adjustment Cable 40P (LSUP0005A)**

**14. TP Adjustment P.C.B. 40P (VFKW0123B)**

**15. TP Clip 36P (LSUP0005C)**
   **(adjustment equipment with using Infinity Lens)**

**16. Lighting (Light Box (VFK1164LBX1) is recommended)**

**17. Infinity Lens (VFK1164TCM02)**
   **(with Focus Chart)**

**18. 52, 49, 46 or 43 mm Ring (VFK1164TAR53, VFK1164TAR49, VFK1164TAR46 or VFK1164TAR43)**

**19. Gray Scale Chart (VFK1164TFGS2)**

**20. Color Bar Chart (VFK1164TFCB2)**

**21. White Chart (VFK1164TFWC2)**

**22. Color Conversion Filter (VFK1164TFCT2)**
   **(adjustment equipment without using Infinity Lens)**

**23. Lighting (Halogen Lamp (2000 lux))**

**24. Reflection Chart**
   **Reflection Chart Set (VFKS003-N)**
   **(Reflection Chart Set consists of Gray Scale Chart (VFKS003A), Color Bar Chart (VFKS003B), Registration Chart (VFKS003C), and Resolution Chart (VFKS003D)) Gray Scale Chart (VFKS003A) Color Bar Chart (VFKS003B) Registration Chart (VFKS003C) ResolutionChart(VFKS003D)Color Chip Chart (VFKW0116)**

**25. Color Temperature Conversion Filter 80A or equivalent Color Temperature Conversion Filter**

**26. Color Compensating Filter CC05M**

**27. A.W.B. Adjustment Fixture (VFKW0066)**

### 8.3.3. PREPARATION

**1. Connect the Interface Box to the TP Board with Camera Connecting Cable (VFKW1000B).**

**2. Connect the Interface Box to the Personal Computer with RS-232C Cable (VFKW1000C or VFKW1000D).**

**3. Connect the TP Board to S301 on the camcorder. Refer to "HOW TO USE TP BOARD" in "SERVICE NOTES."**

**4. Connect the AC Adaptor and camcorder, and apply DC +6 V to the Interface Box.**

**5. Power on the camcorder.**
   **Note:**
   **In case that the camcorder is in DEMO mode, release DEMO mode as follows:**

**1. Press MENU button for MENU mode. Then, press UP or DOWN button to select "SELF DEMO."**

**2. Press M.FOCUS button to select "OFF."**

**3. Press MENU to exit.**

   **CAUTION:**

1. **Do not connect or disconnect any cables while the camcorder is powered on.**

2. **Before using the TP Board, be sure to clean S301 pattern with alcohol and confirm that there is no dust in the TP Clip.**

3. **To achieve the best adjustment results, warm up the camcorder for approx. 30 minutes before adjustment.**

4. **When removing the TP Clip from S301 on the camcorder, be sure to pinch the grips.**
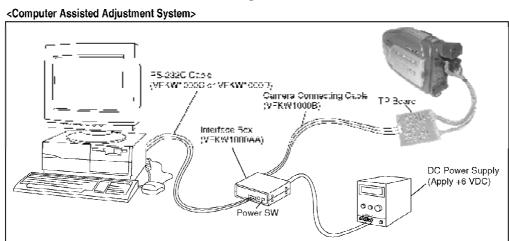
**Fig. E1-1**



<Computer Assisted Adjustment System>

6. **Set up the camcorder for adjustment as follows:**
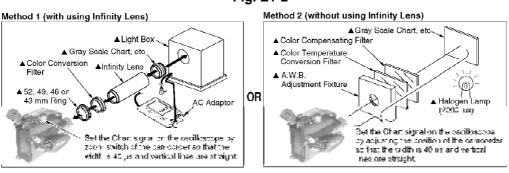
**Fig. E1-2**
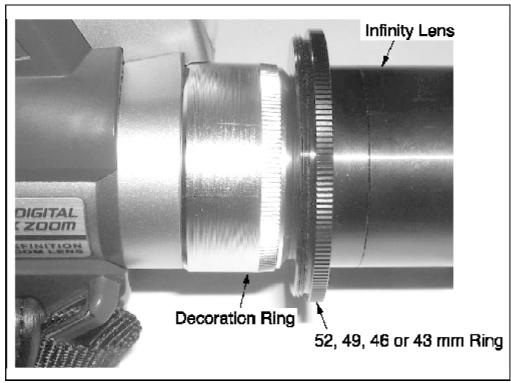


**Note: (in Method 1)**

1. **Connect the 52, 49, 46 or 43 mm Ring to the Infinity Lens. Then, insert it into the Light Box.**

2. **Set the camcorder so that the Decoration Ring of the camcorder is firmly against the 52, 49, 46 or 43 mm Ring.**
   **When performing this operation, ensure that there is no gap**

**between the Decoration Ring and the 52, 49, 46 or 43 mm and that no external light can enter.**

**Fig. E1-3**



Figure

For necessary equipments marked ▲ in Fig. E1-2, refer to the following table.

| Section | Adjustment Item | Light Box | Infinity Lens / 52, 49, 46 or 43mm Ring | Focus Chart | Gray Scale Chart | Color Bar Chart | White Chart | Color Conversion Filter | Halogen Lamp | Any Object (High contrast) | Gray Scale Chart | Color Bar Chart | Color Chip Chart | White Chart | Color Temperature Conversion Filter | Color Compensating Filter | A.W.B. Adjustment Fixture |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Method 1 | | | | | | | Method 2 | | | | | | | | |
| Camera Section | Frequency Adjustment ※ | Not used | | | | | | | | | | | | | | | |
| | VCO Adjustment | | | | | | | | | | | | | | | | |
| | Burst/Sync Level Adjustment | | | | | | | | | | | | | | | | |
| | Hall Amp Adjustment | | | | | | | | | | | | | | | | |
| | Auto Focus Adjustment (Automatic Adjustment) Note 2→ | ○ | ○ | ○ | | | | | Not available (Note 1) | | | | | | | | |
| | A/D Input Level Adjustment | ○ | ○ | | ○ | | | | | ○ | ○ | | | | | | |
| | Iris PWM Adjustment | ○ | ○ | | ○ | | | | | ○ | ○ | | | | | | |
| | YH Level Adjustment | ○ | ○ | | ○ | | | | | ○ | ○ | | | | | | |
| | Auto White Balance Adjustment | | | | | | | | | | | | | | | | |
| |   1 Indoor Preset Adjustment | ○ | ○ | | | | ○ | | | ○ | | | | | ○ | | |
| |   2 Indoor Input Adjustment | ○ | ○ | | | | ○ | | | ○ | | | | | ○ | | |
| |   3 Color Phase & R-Y, B-Y Gain Adjustment (Indoor Mode) | ○ | ○ | | | ○ | | | | ○ | | | | ○ | | | |
| |   4 Outdoor Preset Adjustment | ○ | ○ | | | | ○ | ○ | | ○ | | | | | ○ | ○ | ○ |
| |   5 Outdoor Input Adjustment | ○ | ○ | | | | ○ | ○ | | ○ | | | | | ○ | ○ | ○ |
| |   6 Color Phase & R-Y, B-Y Gain Adjustment (Outdoor Mode) | ○ | ○ | | | ○ | | ○ | | ○ | | | | ○ | | ○ | ○ |
| VCR Section | Playback Video Level Adjustment | Not used | | | | | | | | | | | | | | | |
| | Sync Tip Frequency Adjustment | | | | | | | | | | | | | | | | |
| | Deviation Adjustment | | | | | | | | | | | | | | | | |
| | Rec Level Adjustment | | | | | | | | | | | | | | | | |
| | Comb Filter Gain Adjustment | ○ | ○ | | | ○ | | | | ○ | | | ○ | | | | |
| EVF Section | YNR Adjustment | Not used | | | | | | | | | | | | | | | |
| | Head Switching Position Adjustment | | | | | | | | | | | | | | | | |
| | 4.84 MHz Trap Adjustment | | | | | | | | | | | | | | | | |
| | PLL Adjustment | | | | | | | | | | | | | | | | |
| | Contrast (V1/V2/V3) Adjustment | | | | | | | | | | | | | | | | |
| | Brightness (V1/V2/V3) Adjustment | | | | | | | | | | | | | | | | |
| | Black Limiter Adjustment | | | | | | | | | | | | | | | | |
| | VCOM Level Adjustment | | | | | | | | | | | | | | | | |
| LCD Section | PLL Adjustment | Not used | | | | | | | | | | | | | | | |
| | Pedestal Level Adjustment | | | | | | | | | | | | | | | | |
| | Contrast Adjustment | | | | | | | | | | | | | | | | |
| | RB Sub Pedestal Level Adjustment | | | | | | | | | | | | | | | | |
| | RB Sub Contrast Level Adjustment | | | | | | | | | | | | | | | | |
| | Color Gain Adjustment | | | | | | | | | | | | | | | | |
| | VCOM Level Adjustment | | | | | | | | | | | | | | | | |
| | Common Bias Adjustment | | | | | | | | | | | | | | | | |

※ Note: Refer to "Frequency Adjustment" procedure.

Note 1: Auto Focus adjustment (Automatic adjustment) is available only for Method 1.

Note 2: When performing Auto Focus Adjustment (Automatic Adjustment), be sure to perform under low light conditions.
To carry out this adjustment using the Light Box, create low light conditions artificially as follows.
Set the shutter speed to 1/10,000 or 1/4,000 on the menu display and confirm that there is no flicker in the Focus Chart image at the selected shutter speed.

## 8.3.4. SET UP OF PC-EVR ADJUSTMENT PROGRAM

1. **Turn on the PC and install the PC-EVR Adjustment Program into the PC.**

2. **Execute the "kc2003.exe" file by double clicking to start up the PC -EVR Adjustment Program.**
   **The main menu display will be displayed.**

**Note:**

**The adjusted data is stored to the EEPROM IC after each adjustment.**

## 8.3.5. FREQUENCY ADJUSTMENT

**When replacing crystal oscillator (X601), confirm the Burst Frequency according to the**

**procedure below.**

## Purpose:

To set the chroma subcarrier.

## Symptom of Misadjustment:

The picture will have no color. (The burst shifts)

## Test Point :

TP601 (Main C.B.A.)

## Adjustment :

C619, C620 (Main C.B.A.)

## Specification :

14.31789 MHz ~ 14.31847 MHz
(For model with Photo Shot function)
9.53477 MHz ~ 9.53515 MHz
(For model without Photo Shot function)

## Input :

----------

## Mode :

----------

## Equipment :

Frequency counter
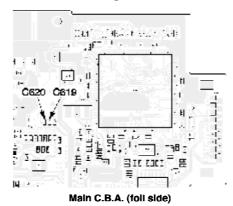
**Adjustment Procedure:**

1. Place the unit in Service Position to gain access to C619 and C620 on the Main C.B.A. (foil side).

2. Connect the Frequency counter to TP601 on the Main C.B.A. (For model with Photo Shot function)

   A. If the frequency is under 14.31789 MHz, be sure to remove the Capacitor C619 on the Main C.B.A.
   Then, confirm the frequency is between 14.31789 MHz and 14.31847 MHz.

   B. If the frequency is over 14.31847 MHz, install a Capacitor (a widely used capacitor: ECJ1VC1H010C) to C620 on the Main C.B.A.
   Then, confirm the frequency is between 14.31789 MHz and

**14.31847 MHz.**

**Fig. E2-1**



Main C.B.A. (foil side)

**(For model without Photo Shot function)**
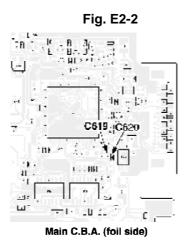
**A. If the frequency is under 9.53477 MHz, be sure to remove the Capacitor C619 on the Main C.B.A.**
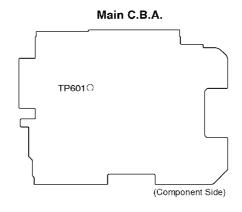
**Then, confirm the frequency is between 9.53477 MHz and 9.53515 MHz.**
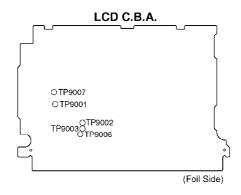
**B. If the frequency is over 9.53515 MHz, install a Capacitor (a widely used capacitor: ECJ1VC1H020C) to C620 on the Main C.B.A.**

**Then, confirm the frequency is between 9.53477 MHz and 9.53515 MHz.**

**Fig. E2-2**



Main C.B.A. (foil side)

## 8.3.6. TEST POINTS AND CONTROL LOCATION

Main C.B.A.

TP601 ○

(Component Side)

LCD C.B.A.

○ TP9007
○ TP9001
○ TP9002
TP9003 ○ ○ TP9006

(Foil Side)

Test Point Information

○ Test Point with no Test Pin.
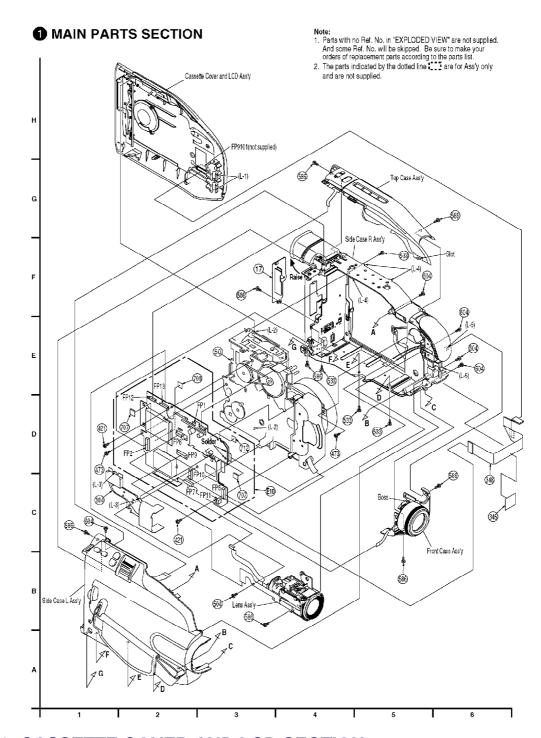
# 9. SCHEMATIC DIAGRAMS

## 9.1. SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES

## 9.2. MAIN SCHEMATIC DIAGRAMS (Models: VM-L153/PV-L353/PV-L353-K)

## 9.3. MAIN SCHEMATIC DIAGRAMS (Model: PV-L453)

## 9.4. LCD SCHEMATIC DIAGRAMS

## 9.5. BATTERY CATCHER SCHEMATIC DIAGRAMS

## 9.6. HEAD AMP SCHEMATIC DIAGRAM

## 9.7. LCD SHAFT UNIT/CCD/MICROPHONE UNIT SCHEMATIC DIAGRAMS

## 9.8. TOP OPERATION UNIT/SIDE L OPERATION UNIT/MECHANISM FPC UNIT SCHEMATIC DIAGRAMS

## 9.9. INTERCONNECTION SCHEMATIC DIAGRAM

# ❶ MAIN PARTS SECTION

**Note:**
1. Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.
2. The parts indicated by the dotted line ⬚ are for Ass'y only and are not supplied.



Cassette Cover and LCD Ass'y

FP9101(not supplied)

(L-1)

Top Case Ass'y

Side Case R Ass'y

Slot

Raise

Side Case L Ass'y

Lens Ass'y

Boss

Front Case Ass'y

Solder

# 12.2. CASSETTE COVER AND LCD SECTION

# ❷ CASSETTE COVER AND LCD SECTION

**Note:**
1. Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.
2. The parts indicated by the dotted line ⌐ ⌐ are for Ass'y only and are not supplied.

**IMPORTANT SAFETY NOTICE:**
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.



# 12.3. SIDE CASE L SECTION

**❸ SIDE CASE L SECTION**

COMPARISON CHART
OF MODELS & MARKS

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |



# 12.4. TOP CASE SECTION

## ❹ TOP CASE SECTION

## 12.5. FRONT CASE SECTION

**❺ FRONT CASE SECTION**

## 12.6. LENS SECTION
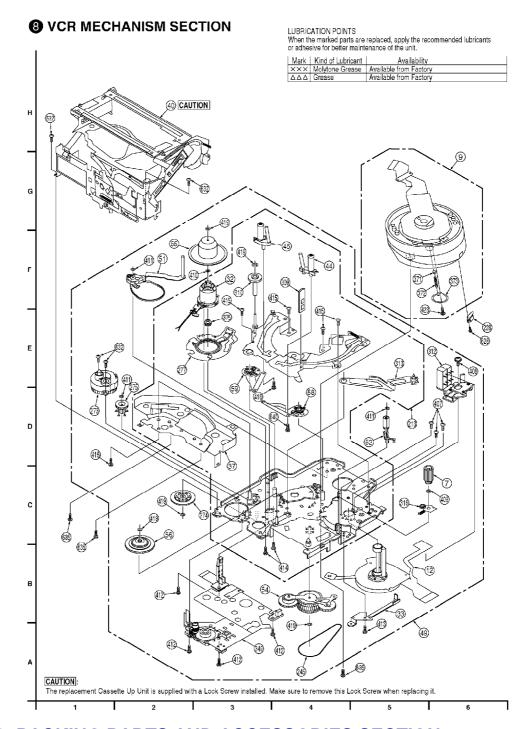
**❻ LENS SECTION**

# 12.7. SIDE CASE R SECTION

**❼ SIDE CASE R SECTION**

COMPARISON CHART OF MODELS & MARKS

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |

EVF Ass'y (L-3)

Slot

Boss

Lamp Ass'y

(L-1)

Press

(L-2)

FP901

FP951(not supplied)

not supplied
NOTE 1

(L-1) ⚠ DANGER

**DANGER:**
Use only replacement Lamp (PART NO. VLLW0015) supplied by Panasonic to reduce risk of fire.
Handle new Lamp with cloth or tissue as skin oils will decrease Lamp life. Remove Light Protector and allow Lamp to cool before replacing to avoid possible burn hazard.

**NOTE 1:**
Battey is not supplied as a replacemet part. Purchase CR2025 battery locally if required.

# 12.8. VCR MECHANISM SECTION

# ❽ VCR MECHANISM SECTION

LUBRICATION POINTS
When the marked parts are replaced, apply the recommended lubricants
or adhesive for better maintenance of the unit.

| Mark | Kind of Lubricant | Availability |
|------|------------------|--------------|
| ××× | Molytone Grease | Available from Factory |
| △△△ | Grease | Available from Factory |



**CAUTION:**
The replacement Cassette Up Unit is supplied with a Lock Screw installed. Make sure to remove this Lock Screw when replacing it.

# 12.9. PACKING PARTS AND ACCESSORIES SECTION

**❾ PACKING PARTS AND ACCESSORIES SECTION**

IMPORTANT SAFETY NOTICE:

COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

COMPARISON CHART OF MODELS & MARKS

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |



# 13. REPLACEMENT PARTS LISTS

BEFORE REPLACING PARTS, READ THE FOLLOWING:

## 13.1. REPLACEMENT NOTES

### 13.1.1. General Notes

# 1. Use only original replacement parts:

To maintain original function and reliability of repaired units, use

only original replacement parts which are listed with their part numbers in the parts list.

2. IMPORTANT SAFETY NOTICE
Components identified by the sign ⚠ have special characteristics important for safety. When replacing any of these components, use only the specified parts.

3. SPECIAL NOTE
All integrated circuits and many other semiconductor devices are electrostatically sensitive and therefore require the special handling techniques described under the "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" section of this service manual.

4. Parts with no Ref. No. in "EXPLODED VIEWS" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.

5. Parts different in shape or size may be used. However, only interchangeable parts will be supplied as service replacement parts.

6. Definition of Parts supplier:
   A. Parts with mark "SPC" in the Remarks column are supplied from Spare Parts Center of Panasonic AVC Company.
   B. Parts with mark "MKE" in the Remarks column are supplied from MKE.
   C. Parts without mark in the Remarks column are supplied from MKI.

7. Item numbers with capital letter E (Example: E10, E20,...) in the Ref. No. column are shown in the exploded views.

8. Parts whose Ref. Nos. are the same are interchangeable as replacement parts. Any of these parts may be ordered and used as a replacement part.

## 13.1.2. Mechanical Replacement Notes

1. Section No. of parts shown in Exploded Views are indicated in the Remarks column.

2. Abbreviation
   RTL: Retention Time Limited

This indicates that the retention time is limited for this item. After the discontinuation of this item in production, it will no longer be available.

3. Cut Washers (Ref No. 409, 411, and 419) are not reusable. If removed, install a new one.

4. After replacing Mechanism Chassis Ass'y (Ref. No. 49) or Mechanism Chassis Sub Ass'y (Ref. No. 213), perform the Tape Interchangeability Adjustment procedures. Refer to "<span style="color:red">TAPE INTERCHANGEABILITYADJUSTMENT</span> " in MECHANICAL ADJUSTMENT.

5. Lamp (Ref No. 340) replacement note:
DANGER: Use only replacement Lamp (PART NO. VLLW0015) supplied by Panasonic to reduce risk of fire. Handle new Lamp with cloth or tissue as skin oils will decrease Lamp life. Remove Light Protector and allow Lamp to cool before replacingtoavoidpossible burn hazard.

### 13.1.3. Electrical Replacement Notes

1. Unless otherwise specified;
All resistors are in Ω , K = 1,000 Ω , M = 1,000 k Ω .

2. Abbreviation
RTL: Retention Time Limited
This indicates that the retention time is limited for this item. After the discontinuation of this item in production, it will no longer be available.
NR: Non Repairable Board Ass'y
MGF CHIP: Metal Glaze Film Chip
C CHIP: Ceramic Chip
COMPLX CMP: Complex Component
W FLMPRF: Wirewound Flameproof
C.B.A.: Circuit Board Assembly
P.C.B.: Printed Circuit Board
E.S.D.: Electrostatically Sensitive Devices

3. SERVICE OF CHIP PARTS
When servicing chip parts, please use a soldering iron of less

**than 30 W.**

4. **When replacing 0 Ω resistor, a wire can be substituted for it.**

5. **IC306 replacement note:**
   **When replacing this IC, be sure to write the initial data with PC-EVR Adjustment Program.**

6. **Resistors on Liquid Crystal Dispaly C.B.A. (Ref. No. E30) replacement note:**
   **Some resistors on Liquid Crystal Display C.B.A. have Ref. Nos. for wire.**
   **Although these resistors are discribed on Circuit Board Layout, they are not discribed on Schematic Diagaram. Refer to "LCD C.B.A." in CIRCUIT BOARD LAYOUT for servicing.**

COMPARISON CHART OF MODELS & MARKS

| MODEL | MARK |
|-------|------|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |

## 13.2. MECHANICAL REPLACEMENT PARTS LIST

COMPARISON CHART OF MODELS & MARKS

| MODEL | MARK |
|-------|------|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |

**Definition of Parts supplier:**

1. **Parts with mark "SPC" in the Remarks column are supplied from Spare Parts Center of Panasonic AVC Company.**

2. **Parts with mark "MKE" in the Remarks column are supplied from MKE.**

3. **Parts without mark in the Remarks column are supplied from MKI.**

**MECHANICAL REPLACEMENT PARTS**

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| 7 | VDGW0072 | TAKE GEAR | 8 |
| 9 | LSEG0087 | CYLINDER UNIT | 8 |
| 12 | LSEM0071 | CAPSTAN UNIT | 8 |
| 13 | LSEM0068S | FOCUS MOTOR UNIT | 6 |
| 15 | LSGQ0032 | HAND STRAP ( A ) | 3 |
| 15 | LSGQ0081 | HAND STRAP ( B,C,D ) | 3 |
| 16 | LSFL0148 | OPTICAL FILTER | 6 |
| 17 | LSKF0477 | EVR COVER ( A ) | 1 |
| 17 | LSKF0479 | EVR COVER ( B,C,D ) | 1 |
| 29 | LSMD0264 | BACK UP COVER | 7 |
| 31 | LSMG0116 | FILTER RUBBER | 6 |
| 32 | VEMW0087 | LOADING MOTOR UNIT | 8 |
| 33 | LSMA0639 | P.C.B. ANGLE | 8 |
| 37 | LSMA0637 | MECHANISM SUPPORT ANGLE | 8 |
| 40 | LSXY0487 | CASSETE UP UNIT | 8 |
| 44 | LSXD0019 | TAKEUP POST UNIT | 8 |
| 45 | LSXD0018 | SUPPLY POST UNIT | 8 |
| 48 | LSXN0026 | LENS UNIT | 6 |
| 49 | LSXY0482 | MECHANISM SUB CHASSIS ASS'Y | 8 RTL |
| 50 | LSXY0408 | MECHANISM CHASSIS ASS'Y | 1 RTL |
| 51 | VXLW0080 | TENSION UNIT | 8 |
| 52 | LSXL0075 | PINCH ARM UNIT | 8 |
| 54 | LSXL0086 | IDLER ARM UNIT | 8 |
| 55 | VXPW0025 | REEL TABLE UNIT | 8 |
| 56 | VXPW0024 | REV CLUTCH | 8 |
| 58 | VXLW0078 | TAKEUP LOADING ARM UNIT | 8 |
| 59 | VXLW0077 | SUPPLY LOADING ARM UNIT | 8 |
| 61 | LSYK1065 | ELECTRONIC VIEWFINDER UNIT ( A ) | 7 RTL |
| 61 | LSYK1066 | ELECTRONIC VIEWFINDER UNIT ( B,C,D ) | 7 RTL |
| 67 | LSYK1195 | CASSETTE COVER UNIT ( A ) | 2 |
| 67 | LSYK1194 | CASSETTE COVER UNIT ( B,C ) | 2 |
| 67 | LSYK1192 | CASSETTE COVER UNIT ( D ) | 2 |
| 71 | LSJA0276 | PC CONNECTION CABLE W/PLUG ( D ) | 9 |
| 71 | LSJA0450 | PC CONNECTION CABLE W/PLUG ( D ) | 9 |
| 72 | LSKM0957 | LENS CAP ( A ) | 9 |
| 72 | LSKM0937 | LENS CAP ( B,C,D ) | 9 |
| 73 | LSGQ0049 | LENS CAP STRAP | 9 |
| 75 | LSFT0541 | FLOPPY DISK UNIT ( D ) | 9 |
| 77 | LSQT0629A | INSTRUCTION BOOK ( D ) | 9 |
| 81 | LSJA0391 | DC CORD W/PLUG | 9 |
| 82 | LSJA0390 | AUDIO/VIDEO CABLE W/PLUG | 9 |
| 83 | LSPN0313 | CUSHION,STYROFORM | 9 |
| 84 | VPFW0049 | BAG,POLYETHYLENE | 9 |
| 85 | LSPG1525 | PACKING CASE,PAPER ( A ) | 9 |
| 85 | LSPG1526 | PACKING CASE,PAPER ( B ) | 9 |
| 85 | LSPG1512 | PACKING CASE,PAPER ( C ) | 9 |
| 85 | LSPG1527 | PACKING CASE,PAPER ( D ) | 9 |
| 86 | LSPN0314 | CUSHION COVER | 9 |
| 88 | LSQF0630 | FAN BAG ( A ) | 9 |
| 88 | LSQF0628 | FAN BAG ( B ) | 9 |
| 88 | LSQF0725 | FAN BAG ( C ) | 9 |
| 88 | LSQF0629 | FAN BAG ( D ) | 9 |
| 92 | LSFC0012 | SHOULDER STRAP | 9 |
| 93 | VYMW0009 | CASSETTE ADAPTOR ( C ) | 9 |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| 95 | PV-A20-A | AC ADAPTOR UNIT ( A,B,D ) | ⚠ 9 |
| 95 | PV-A20-K-A | AC ADAPTOR UNIT ( C ) | ⚠ 9 |
| 101 | N9ZZ00000027 | SECURITY TAG ( A,B,D ) | 3 |
| 103 | CSP-1C | CHECK POINT LABEL ( B ) | 9 |
| 107 | LSGU0554 | TAPE EJECT KNOB | 4 |
| 115 | LSYK1046 | SIDE CASE L UNIT,ABS RESIN ( A ) | 3 |
| 115 | LSYK1047 | SIDE CASE L UNIT,ABS RESIN ( B,C ) | 3 |
| 115 | LSYK1048 | SIDE CASE L UNIT,ABS RESIN ( D ) | 3 |
| 117 | LSMA0662 | TRIPOD FRAME | 3 |
| 128 | LSXM0030 | MICROPHONE UNIT ( A ) | 5 |
| 128 | LSXM0029 | MICROPHONE UNIT ( B,C,D ) | 5 |
| 130 | LSEQ0664 | TOP OPERATION UNIT | 4 |
| 131 | LSEQ0663 | SIDE L OPERATION UNIT | 3 |
| 148 | LSKM0934 | EVF CASE,ABS RESIN ( A ) | 7 |
| 148 | LSKM0859 | EVF CASE,ABS RESIN ( B,C,D ) | 7 |
| 151 | LSKM0849 | SIDE CASE R,ABS RESIN ( A ) | 7 |
| 151 | LSKM0935 | SIDE CASE R,ABS RESIN ( B,C ) | 7 |
| 151 | LSKM0936 | SIDE CASE R,ABS RESIN ( D ) | 7 |
| 152 | LSSC0588 | SHIELD PLATE,STEEL ( D ) | 7 |
| 155 | LSJB8212 | CCD FLEXIBLE PRINTED CIRCUIT | 6 |
| 184 | LSSC0590 | SENSOR SHIELD CASE,STEEL | 1 |
| 186 | LSGF0517 | LIGHT PROTECTOR | 7 |
| 188 | LSMR0018 | LIGHT REFLECTOR | 7 |
| 190 | LSMX0169 | STOPPER PIECE ( A,B,C ) | 3 |
| 203 | LSXY0404 | BACK LIGHT UNIT | ⚠ 2 |
| 206 | LSMA0647 | SHOULDER ANGLE A | 7 |
| 209 | LSMA0643 | HAND STRAP ANGLE | 3 |
| 211 | LSXY0321 | LIQUID CRYSTAL DISPLAY PANEL UNIT | 2 |
| 212 | LSXY0405 | LEAD LIGHT PANEL UNIT | 2 |
| 213 | LSXY0407 | MECHANISM CHASSIS SUB ASS'Y | 8 |
| 214 | LSMZ0213 | TAPE GUIDE | 7 |
| 215 | LSMZ0210 | GUIDE COVER | 7 |
| 216 | LSMZ0214 | PROTECTOR | 7 |
| 221 | LSEM0067S | ZOOM MOTOR UNIT | 6 |
| 228 | VMDW0357 | BULGE CHIP | 8 |
| 229 | LSMB0248 | TAPE GUIDE SPRING | 7 |
| 234 | LSMT0045 | LENS RUBBER | 6 |
| 239 | VKFS1021 | BATTERY COMPARTMENT LID ( C ) | 9 |
| 241 | LSFL0149 | INFRARED CUT FILTER | 6 |
| 245 | VDVW0003 | CAPSTAN BELT | 8 |
| 268 | LSMG0118 | EYE CAP | 7 |
| 273 | VXYW0195 | REDUCTION GEAR UNIT | 8 |
| 274 | VDGW0063 | REDUCTION GEAR A | 8 |
| 275 | LSDG0139 | REDUCTION GEAR B | 8 |
| 277 | VXYW0194 | MAIN CAM UNIT | 6 |
| 297 | LSMD0784 | LENS PIECE | 8 |
| 309 | VMDW0486 | PINCH TAPE GUIDE | 8 |
| 310 | VXJW0095 | IMPEDANCE ROLLER UNIT | 8 |
| 312 | LSEH0007 | AC HEAD UNIT | 8 |
| 313 | VMLW0083 | PINCH TOGGLE | 8 |
| 316 | LSXL0083 | REV BRAKE ARM UNIT | 8 |
| 335 | LSKM0905 | LCD CASE B,ABS RESIN ( A ) | 2 |
| 335 | LSKM0857 | LCD CASE B,ABS RESIN ( B,C,D ) | 2 |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| 340 | VLLW0015 | LAMP | ⚠ 7 |
| 344 | LSEK0504 | EVF FLEXIBLE PRINTED CIRCUIT | 7 |
| 345 | LSMF0057 | SHEET,NYLON-RAYON | 1,2,3 |
| 348 | LSEK0505 | LCD FLEXIBLE FLAT CABLE W/OUT PLUG,15V,-15V | 1 |
| 349 | LSEQ0540 | MECHANISM FLEXIBLE PRINTED CIRCUIT UNIT | 8 |
| 355 | LSYK1019 | LCD CASE A UNIT,ABS RESIN ( A ) | 2 |
| 355 | LSYK1018 | LCD CASE A UNIT,ABS RESIN ( B,C ) | 2 |
| 355 | LSYK1000 | LCD CASE A UNIT,ABS RESIN ( D ) | 2 |
| 361 | LSEK0480 | EVF MAIN UNIT | 7 |
| 362 | LSSC0602 | ESD PLATE L,STEEL | 3 |
| 363 | LSMA0665 | COOLING PLATE | 3 |
| 366 | LSXA0492 | LCD SHAFT UNIT ( A ) | 2 |
| 366 | LSXA0491 | LCD SHAFT UNIT ( B,C,D ) | 2 |
| 371 | LSSA0002 | EARTH CONTACT | 8 |
| 372 | LSMB0168 | CONTACT SPRING | 8 |
| 373 | LSMA0336 | CONTACT PLATE,STEINLESS | 8 |
| 375 | VDGW0059 | MOTOR GEAR | 8 |
| 378 | LSSC0587 | EVF ESD PLATE,STEEL | 7 |
| 379 | LSEK0478 | LAMP SOCKET UNIT | 7 |
| 380 | LSGK0131 | DECORATION RING ( A ) | 5 |
| 380 | LSGK0130 | DECORATION RING ( B,C,D ) | 5 |
| 382 | LSGU0558 | UP DOWN BUTTON | 3 |
| 383 | LSKM0925 | SHAFT COVER ( A ) | 2 |
| 383 | LSKM0872 | SHAFT COVER ( B,C,D ) | 2 |
| 387 | LSMD0783 | COVER HINGE | 2 |
| 392 | LSXA0490 | EVF ANGLE UNIT | 7 |
| 393 | LSYK1055 | FRONT CASE UNIT,ABS RESIN ( A ) | 5 |
| 393 | LSYK1054 | FRONT CASE UNIT,ABS RESIN ( B,C,D ) | 5 |
| 394 | LSGP0340 | RING PANEL | 5 |
| 395 | LSYK1031 | TOP CASE UNIT,ABS RESIN ( A ) | 4 |
| 395 | LSYK1030 | TOP CASE UNIT,ABS RESIN ( B,C ) | 4 |
| 395 | LSYK1004 | TOP CASE UNIT,ABS RESIN ( D ) | 4 |
| 396 | LSMZ0343 | SOUND INSULATION SHEET | 2 |
| 397 | LSSC0603 | CONNECTOR SHIELD CASE,STEEL | 2 |
| 407 | XQN16+A32 | SCREW,STEEL | 8 |
| 408 | VHDW0124 | SCREW W/WASHER,STEEL | 8 |
| 409 | VMXW0217 | CUT WASHER,STEEL | 8 |
| 410 | XWGV15Z32G | POLY SLIDER WASHER | 8 |
| 411 | VMXW0213 | CUT WASHER,STEEL | 8 |
| 412 | XQN2+B35 | SCREW,STEEL | 8 |
| 413 | XQN2+A22 | SCREW,STEEL | 8 |
| 414 | XQN14+A32 | SCREW,STEEL | 8 |
| 415 | XQN2+B22 | SCREW,STEEL | 8 |
| 416 | XQN14+BJ25FZ | SCREW,STEEL | 8 |
| 419 | VMX2026 | CUT WASHER,STEEL | 8 |
| 421 | XQN16+BF4FN | SCREW,STEEL | 1 |
| 423 | XQN16+B3FN | SCREW,STEEL | 8 |
| 469 | XQN2+BF4FXK | SCREW,STEEL | 2 |
| 472 | VHDW0102 | SCREW,STEEL | 7 |
| 473 | VHDW0100 | SCREW,STEEL | 1 |
| 502 | XQN16+CJ6 | SCREW,STEEL | 6 |
| 504 | XQN2+CF3 | SCREW,STEEL | 1 |
| 533 | XQN2+BF5FXK | SCREW,STEEL | 1,3,4 |
| 586 | XQN2+BJ5FXK | SCREW,STEEL | 1,2,3,5,7 |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| 604 | XQN2+BJ8FXK | SCREW,STEEL | 1 |
| 620 | XQN2+BJ6FXK | SCREW,STEEL | 5,7 |
| 627 | XQN2+BJ3FXK | SCREW,STEEL | 4,7 |
| 628 | XQN16+B3FU | SCREW,STEEL | 8 |
| 632 | XQN14+B3 | SCREW,STEEL | 8 |
| 635 | XQN16+C5FU | SCREW,STEEL | 8 |
| 640 | LSHD0054 | SCREW,STEEL | 8 |
| 647 | XQN2+BJ35 | SCREW,STEEL | 6 |
| 648 | XQN14+BJ4 | SCREW,STEEL | 6 |
| 706 | LSMZ0342 | INSULATION SHEET,PLASTIC | 2 |
| 707 | VMTS0035 | CUSHION,RUBBER | 1 |
| 708 | LSMX0171 | INSULATION SHEET,PLASTIC | 1 |
| 709 | LSMX0175 | SHEET,NYLON-RAYON | 7 |
| 710 | K1NA09B00002 | SD CARD CONNECTOR ( D ) | 7 |
| 711 | LSMX0171 | SHEET,NYLON-RAYON ( D ) | 7 |
| 712 | LSMF0220 | SHEET,NYLON-RAYON | 1 |
| E10 | LSEP8205A1 | MAIN C.B.A. ( A ) | 1 RTL |
| E10 | LSEP8205B1 | MAIN C.B.A. ( B ) | 1 RTL |
| E10 | LSEP8205C1 | MAIN C.B.A. ( C ) | 1 RTL |
| E10 | LSEP8204A1 | MAIN C.B.A. ( D ) | 1 RTL |
| E20 | LSEP8207B1 | BATTERY CATCHER C.B.A. NR ( A,B,C ) | 7 |
| E20 | LSEP8207A1 | BATTERY CATCHER C.B.A. NR ( D ) | 7 |
| E30 | LSEP8206A1 | LIQUIED CRYSTAL DISPLAY C.B.A. | 2 RTL |
| E40 | LSEQ0666 | CCD C.B.A. NR | 6 |

## SERVICE FIXTURES AND TOOLS

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| | VFKS003-N | REFLECTION CHART SET | MKE |
| | VFKS003A | GLAY SCALE CHART | MKE |
| | VFKS003B | COLOR BAR CHART | MKE |
| | VFKS003C | REGISTRATION CHART | MKE |
| | VFKS003D | RESOLUTION CHART | MKE |
| | VFK1164TFWC2 | WHITE CHART | SPC |
| | VFK1164TFGS2 | GRAY SCALE CHART | SPC |
| | VFK1164TFCB2 | COLOR BAR CHART | SPC |
| | VFK1164TFCT2 | COLOR CONVERSION FILTER | SPC |
| | VFK1164LBX1 | LIGHT BOX | SPC |
| | VFK1164TCM02 | INFINITY LENS (WITH FOCUS CHART) | SPC |
| | VFK1164TLA01 | LAMP | SPC |
| | VFK1164TAR58 | ATTACHMENT RING (58mm) | SPC |
| | VFK1164TAR55 | ATTACHMENT RING (55mm) | SPC |
| | VFK1164TAR52 | ATTACHMENT RING (52mm) | SPC |
| | VFK1164TAR49 | ATTACHMENT RING (49mm) | SPC |
| | VFK1164TAR46 | ATTACHMENT RING (46mm) | SPC |
| | VFK1164TAR43 | ATTACHMENT RING (43mm) | SPC |
| | VFK1164TAR37 | ATTACHMENT RING (37mm) | SPC |
| | VFK1164TAR3A | ATTACHMENT RING (30.5mm) | SPC |
| | VFK1164TAR27 | ATTACHMENT RING (27mm) | SPC |
| | VFMS0004H6C | VHS-C ALIGNMENT TAPE | MKE |
| | VFMW0001C | VHS-C ALIGNMENT TAPE | MKE |
| | VFK27 | HEAD CLEANING STICK | SPC |
| | VFKS0081 | GREASE | MKE |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| | VFK1024 | MOLYTONE GREASE | SPC |
| | VUVS0007 | EXTENSION CABLE 12P | MKE |
| | VUVS0012 | EXTENSION CABLE 22P | MKE |
| | VUVS0015 | EXTENSION CABLE 28P | MKE |
| | LSUP0005A | TP ADJUSTMENT CABLE 40P | MKE |
| | VFKW0123B | TP ADJUSTMENT PCB 40P | MKE |
| | LSUP0005C | TP CLIP 36P | MKE |
| | VFKW0066 | A.W.B. ADJUSTMENT FIXTURE | MKE |
| | VFKW0116 | COLOR CHIP CHART | MKE |
| | VFKW1000 | CAAS KIT | MKE |
| | VFKW1000AA | INTERFACE BOX | MKE |
| | VFKW1000B | CAMERA CONNECTING CABLE | MKE |
| | VFKW1000C | 9PIN RS-232C CABLE | MKE |
| | VFKW1000D | 25PIN RS-232C CABLE | MKE |
| | VHDW0125 | LOCK SCREW | MKE |
| | LSVQ0028 | PLIER FOR NON ZIF CONNECTOR | MKE |

# 13.3. ELECTRICAL REPLACEMENT PARTS LIST

COMPARISON CHART OF MODELS & MARKS

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |

**Definition of Parts supplier:**

# 1. All parts are supplied from MKI.

## PRINTED CIRCUIT BOARD ASSEMBLY

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| E10 | LSEP8205A1 | MAIN C.B.A. ( A ) | E.S.D. RTL |
| E10 | LSEP8205B1 | MAIN C.B.A. ( B ) | E.S.D. RTL |
| E10 | LSEP8205C1 | MAIN C.B.A. ( C ) | E.S.D. RTL |
| E10 | LSEP8204A1 | MAIN C.B.A. ( D ) | E.S.D. RTL |
| E20 | LSEP8207B1 | BATTERY CATCHER C.B.A. NR ( A,B,C ) | |
| E20 | LSEP8207A1 | BATTERY CATCHER C.B.A. NR ( D ) | |
| E30 | LSEP8206A1 | LIQUIED CRYSTAL DISPLAY C.B.A. | RTL |
| E40 | LSEQ0666 | CCD C.B.A. NR | |

## 13.3.1. MAIN C.B.A.
**(MODEL: A, B, C)**

COMPARISON CHART OF MODELS & MARKS

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |

# INTEGRATED CIRCUITS

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| IC301 | MN673242 | IC, LOGIC | E.S.D. |
| IC306 | C3EBEG000047 | IC, 4K EEP ROM | E.S.D. |
| IC308 | C2DBJG000120 | IC, 32BIT MICROCONTROLLER | E.S.D. |
| IC309 | C0ABCZ000008 | IC, LINEAR | |
| IC603 | C1AB00000339 | IC, LOGIC | E.S.D. |
| IC605 | AN2109NFHQ | IC, LINEAR | |
| IC701 | C0GBC0000018 | IC, LINEAR | |
| IC701 | C0GBA0000011 | IC, LINEAR | |
| IC701 | LB1837MTEL3 | IC, LINEAR | |
| IC702 | C0GBC0000018 | IC, LINEAR | |
| IC702 | C0GBA0000011 | IC, LINEAR | |
| IC702 | LB1837MTEL3 | IC, LINEAR | |
| IC1001 | C0DBCMC00003 | IC, LINEAR | |
| IC2001 | AN3897FH-V | IC, LINEAR | |
| IC2002 | UNA022400L | IC, LINEAR | |
| IC2003 | UNA022400L | IC, LINEAR | |
| IC3001 | AN2401NFH | IC, LINEAR | |
| IC3002 | MN38663S-E1 | IC, LOGIC | E.S.D. |
| IC4001 | AN12998A-V | IC, LINEAR | |
| IC6001 | MN101D06FWG | IC, 8BIT MICROCONTROLLER | E.S.D. |
| IC6002 | C0EBG0000136 | IC, LINEAR | |
| IC6002 | R3111Q391ATR | IC, LINEAR | |
| IC6002 | S80839ANNPT2 | IC, LINEAR | |
| IC6002 | XC61CN3902NR | IC, LINEAR | |
| IC6005 | C1ZBZ0002198 | IC, PERIPHERAL MCU | E.S.D. |
| IC6006 | C0CBACE00012 | IC, PERIPHERAL MCU | E.S.D. |
| IC6007 | C0GBG0000029 | IC, LINEAR | |
| IC6203 | CNB10010RL | TAKEUP REEL SENSOR | |

# TRANSISTORS

| Ref. No. | Part No. | Part Name & Description | Remarks |
|----------|----------|------------------------|---------|
| Q301 | 2SD1819A0L | TRANSISTOR SI NPN CHIP | |
| Q301 | B1ABCF000020 | TRANSISTOR SI NPN CHIP | |
| Q302 | B1ABAD000010 | TRANSISTOR SI NPN CHIP | |
| Q302 | 2SC4215-YTL | TRANSISTOR SI NPN CHIP | |
| Q303 | 2SD1819A0L | TRANSISTOR SI NPN CHIP | |
| Q303 | B1ABCF000020 | TRANSISTOR SI NPN CHIP | |
| Q305 | 2SD1819A0L | TRANSISTOR SI NPN CHIP | |
| Q305 | B1ABCF000020 | TRANSISTOR SI NPN CHIP | |
| Q306 | 2SB1218A0L | TRANSISTOR SI PNP CHIP | |
| Q306 | B1ADCF000063 | TRANSISTOR SI PNP CHIP | |
| Q307 | 2SB1218A0L | TRANSISTOR SI PNP CHIP | |
| Q307 | B1ADCF000063 | TRANSISTOR SI PNP CHIP | |
| Q310 | 2SD1819A0L | TRANSISTOR SI NPN CHIP | |
| Q310 | B1ABCF000020 | TRANSISTOR SI NPN CHIP | |
| Q311 | 2SD1819A0L | TRANSISTOR SI NPN CHIP | |
| Q311 | B1ABCF000020 | TRANSISTOR SI NPN CHIP | |
| Q617 | UNR521500L | TRANSISTOR SI NPN CHIP | |
| Q617 | B1GBCFJA0006 | TRANSISTOR SI NPN CHIP | |
| Q703 | UNR521100L | TRANSISTOR SI NPN CHIP | |
| Q703 | B1GBCFJJ0007 | TRANSISTOR SI PNP CHIP | |
| Q1001 | UNR511100L | TRANSISTOR SI PNP CHIP | |
| Q1001 | B1GDCFJJ0008 | TRANSISTOR SI PNP CHIP | |
| Q1002 | UNR511300L | TRANSISTOR SI PNP CHIP | |
| Q1002 | B1GDCFNN0007 | TRANSISTOR SI PNP CHIP | |
| Q1003 | UNR511500L | TRANSISTOR SI PNP CHIP | |
| Q1003 | B1GDCFJJ0025 | TRANSISTOR SI PNP CHIP | |
| Q1005 | 2SA201000L | TRANSISTOR SI PNP CHIP | |
| Q1005 | B1ADPB000001 | TRANSISTOR SI PNP CHIP | |
| Q1006 | 2SA204600L | TRANSISTOR SI PNP CHIP | |
| Q1006 | B1ADMD000009 | TRANSISTOR SI PNP CHIP | |
| Q1007 | 2SA204600L | TRANSISTOR SI PNP CHIP | |
| Q1007 | B1ADMD000009 | TRANSISTOR SI PNP CHIP | |
| Q1008 | 2SA204600L | TRANSISTOR SI PNP CHIP | |
| Q1008 | B1ADMD000009 | TRANSISTOR SI PNP CHIP | |
| Q1009 | 2SA204600L | TRANSISTOR SI PNP CHIP | |
| Q1009 | B1ADMD000009 | TRANSISTOR SI PNP CHIP | |
| Q1010 | 2SB1218A0L | TRANSISTOR SI PNP CHIP | |
| Q1010 | B1ADCF000063 | TRANSISTOR SI PNP CHIP | |
| Q1015 | B1ABCF000098 | TRANSISTOR SI NPN CHIP | |
| Q1015 | B1ABCF000099 | TRANSISTOR SI NPN CHIP | |
| Q1018 | 2SB1218A0L | TRANSISTOR SI PNP CHIP | |
| Q1018 | B1ADCF000063 | TRANSISTOR SI PNP CHIP | |
| Q1019 | 2SB1218A0L | TRANSISTOR SI PNP CHIP | |
| Q1019 | B1ADCF000063 | TRANSISTOR SI PNP CHIP | |
| Q1024 | 2SD1819A0L | TRANSISTOR SI NPN CHIP | |
| Q1024 | B1ABCF000020 | TRANSISTOR SI NPN CHIP | |
| Q1101 | B1BDEB000001 | TRANSISTOR SI PNP CHIP | |
| Q1102 | 2SD1819A0L | TRANSISTOR SI NPN CHIP | |
| Q1102 | B1ABCF000020 | TRANSISTOR SI NPN CHIP | |
| Q1103 | 2SB1218A0L | TRANSISTOR SI PNP CHIP | |
| Q1103 | B1ADCF000063 | TRANSISTOR SI PNP CHIP | |
| Q1105 | 2SB1218A0L | TRANSISTOR SI PNP CHIP | |
| Q1105 | B1ADCF000063 | TRANSISTOR SI PNP CHIP | |
| Q3003 | 2SB1218A0L | TRANSISTOR SI PNP CHIP | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| Q3003 | B1ADCF000063 | TRANSISTOR SI PNP CHIP | |
| Q3004 | B1ABAD000010 | TRANSISTOR SI NPN CHIP | |
| Q3004 | 2SC4215-YTL | TRANSISTOR SI NPN CHIP | |
| Q3005 | 2SD1819A0L | TRANSISTOR SI NPN CHIP | |
| Q3005 | B1ABCF000020 | TRANSISTOR SI NPN CHIP | |
| Q3027 | 2SD1819A0L | TRANSISTOR SI NPN CHIP | |
| Q3027 | B1ABCF000020 | TRANSISTOR SI NPN CHIP | |
| Q4001 | XP0460100L | TRANSISTOR SI NPN CHIP | |
| Q4001 | B1HFCFA00003 | TRANSISTOR COMPLX CMP SI NPN CHIP | |
| Q4001 | B1HFCFA00009 | TRANSISTOR COMPLX CMP SI NPN CHIP | |
| Q4001 | HN1B04FU-GTR | TRANSISTOR COMPLX CMP SI NPN CHIP | |
| Q4002 | 2SD1819A0L | TRANSISTOR SI NPN CHIP | |
| Q4002 | B1ABCF000020 | TRANSISTOR SI NPN CHIP | |
| Q4003 | 2SD1819A0L | TRANSISTOR SI NPN CHIP | |
| Q4003 | B1ABCF000020 | TRANSISTOR SI NPN CHIP | |
| Q4005 | 2SD1819A0L | TRANSISTOR SI NPN CHIP | |
| Q4005 | B1ABCF000020 | TRANSISTOR SI NPN CHIP | |
| Q4006 | 2SD06020RL | TRANSISTOR SI NPN CHIP | |
| Q4006 | 2SD0602ARL | TRANSISTOR SI NPN CHIP | |
| Q4006 | 2SD2432-R | TRANSISTOR SI NPN CHIP | |
| Q4007 | 2SB09700RL | TRANSISTOR SI PNP CHIP | |
| Q4007 | 2SB1585 | TRANSISTOR SI PNP CHIP | |
| Q4008 | 2SD1819A0L | TRANSISTOR SI NPN CHIP | |
| Q4008 | B1ABCF000020 | TRANSISTOR SI NPN CHIP | |
| Q4009 | 2SD1819A0L | TRANSISTOR SI NPN CHIP | |
| Q4009 | B1ABCF000020 | TRANSISTOR SI NPN CHIP | |
| Q6004 | 2SB1218A0L | TRANSISTOR SI PNP CHIP | |
| Q6004 | B1ADCF000063 | TRANSISTOR SI PNP CHIP | |
| Q6008 | UNR521700L | TRANSISTOR SI NPN CHIP | |
| Q6008 | B1GBCFLA0006 | TRANSISTOR SI NPN CHIP | |
| Q6010 | UNR521200L | TRANSISTOR SI NPN CHIP | |
| Q6010 | B1GBCFLL0012 | TRANSISTOR SI NPN CHIP | |
| Q6012 | 2SD1819A0L | TRANSISTOR SI NPN CHIP | |
| Q6012 | B1ABCF000020 | TRANSISTOR SI NPN CHIP | |
| Q6013 | 2SD0601A0L | TRANSISTOR SI NPN CHIP | |
| Q6013 | B1ABCF000011 | TRANSISTOR SI NPN CHIP | |
| Q6021 | 2SB1218A0L | TRANSISTOR SI PNP CHIP | |
| Q6021 | B1ADCF000063 | TRANSISTOR SI PNP CHIP | |

## DIODES

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| D601 | MA2J11100L | DIODE SI CHIP | |
| D701 | MA2J11100L | DIODE SI CHIP | |
| D1004 | B0JCMD000014 | DIODE SI CHIP | |
| D1005 | MA2J11100L | DIODE SI CHIP | |
| D1005 | B0ACCK000005 | DIODE SI CHIP | |
| D1007 | MA2J11100L | DIODE SI CHIP | |
| D1007 | B0ACCK000005 | DIODE SI CHIP | |
| D1008 | MA2J11100L | DIODE SI CHIP | |
| D1012 | MAZ80680HL | DIODE ZENER CHIP 6.8V | |
| D1013 | B0JCMD000014 | DIODE SI CHIP | |
| D1014 | B0JCMD000014 | DIODE SI CHIP | |
| D1015 | B0JCMD000014 | DIODE SI CHIP | |
| D1016 | MA2J11100L | DIODE SI CHIP | |
| D1016 | B0ACCK000005 | DIODE SI CHIP | |
| D1017 | MA2J11100L | DIODE SI CHIP | |
| D1017 | B0ACCK000005 | DIODE SI CHIP | |
| D1101 | RD12S-T1B | DIODE ZENER CHIP 12V | |
| D1102 | MA2J11100L | DIODE SI CHIP | |
| D1103 | MAZ3120D0L | DIODE ZENER CHIP 12V | |
| D3006 | MA2S35700K8 | DIODE ZENER CHIP 12V | |
| D3006 | B0CAAC000005 | DIODE SI CHIP | |
| D3006 | MA2S357-TX | DIODE SI CHIP | |
| D6001 | MA3J142E0L | DIODE SI CHIP | |
| D6001 | B0ADCJ000012 | DIODE SI CHIP | |
| D6019 | MA2J11100L | DIODE SI CHIP | |

## RESISTORS

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| R301 | ERJ3GEYJ122V | MGF CHIP 1/16W 1.2K | |
| R302 | D0HB561ZA002 | MGF CHIP 1/16W 560 | |
| R303 | ERJ3GEYG102V | MGF CHIP 1/16W 1K | |
| R304 | D0HB222ZA002 | MGF CHIP 1/16W 2.2K | |
| R305 | D0HB222ZA002 | MGF CHIP 1/16W 2.2K | |
| R306 | ERJ3GEYJ391V | MGF CHIP 1/16W 390 | |
| R307 | ERJ3GEYG103V | MGF CHIP 1/16W 10K | |
| R308 | ERJ3GEYG391V | MGF CHIP 1/16W 390 | |
| R309 | D0HB102ZA002 | MGF CHIP 1/16W 1K | |
| R310 | ERJ3GEYG102V | MGF CHIP 1/16W 1K | |
| R311 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R313 | ERJ3GEYJ4R7V | MGF CHIP 1/16W 4.7 | |
| R314 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R315 | D0HB221ZA002 | MGF CHIP 1/16W 220 | |
| R316 | ERJ3GEYJ221V | MGF CHIP 1/16W 220 | |
| R317 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R318 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R319 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R320 | ERJ3GEYJ561V | MGF CHIP 1/16W 560 | |
| R321 | D0HB242ZA002 | MGF CHIP 1/16W 2.4K | |
| R322 | D0HB152ZA002 | MGF CHIP 1/16W 1.5K | |
| R323 | ERJ3GEYJ912V | MGF CHIP 1/16W 9.1K | |
| R324 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R325 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R326 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| R327 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R333 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 | |
| R336 | ERJ3GEYJ473V | MGF CHIP 1/16W 47K | |
| R340 | ERJ3GEYJ332V | MGF CHIP 1/16W 3.3K | |
| R341 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R342 | ERJ3GEYJ222V | MGF CHIP 1/16W 2.2K | |
| R343 | ERJ3GEYJ221V | MGF CHIP 1/16W 220 | |
| R344 | ERJ3GEYJ152V | MGF CHIP 1/16W 1.5K | |
| R345 | ERJ3GEYJ104V | MGF CHIP 1/16W 100K | |
| R346 | ERJ3GEYJ562V | MGF CHIP 1/16W 5.6K | |
| R347 | ERJ3GEYJ272V | MGF CHIP 1/16W 2.7K | |
| R348 | ERJ3GEYJ333V | MGF CHIP 1/16W 33K | |
| R349 | ERJ3GEYJ304V | MGF CHIP 1/16W 300K | |
| R350 | ERJ3GEYJ822V | MGF CHIP 1/16W 8.2K | |
| R351 | ERJ3GEYJ473V | MGF CHIP 1/16W 47K | |
| R352 | ERJ3GEYJ273V | MGF CHIP 1/16W 27K | |
| R353 | ERJ3GEYJ562V | MGF CHIP 1/16W 5.6K | |
| R355 | ERJ3GEYJ304V | MGF CHIP 1/16W 300K | |
| R356 | ERJ3GEYJ334V | MGF CHIP 1/16W 330K | |
| R357 | ERJ3GEYJ474V | MGF CHIP 1/16W 470K | |
| R358 | ERJ3GEYJ123V | MGF CHIP 1/16W 12K | |
| R359 | ERJ3GEYJ123V | MGF CHIP 1/16W 12K | |
| R360 | ERJ3GEYJ331V | MGF CHIP 1/16W 330 | |
| R361 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R362 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R363 | ERJ3GEYJ392V | MGF CHIP 1/16W 3.9K | |
| R364 | ERJ3GEYJ473V | MGF CHIP 1/16W 47K | |
| R365 | ERJ3GEYK395V | MGF CHIP 1/16W 3.9M | |
| R366 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R367 | ERJ3GEYJ273V | MGF CHIP 1/16W 27K | |
| R368 | ERJ3GEYJ273V | MGF CHIP 1/16W 27K | |
| R369 | ERJ3GEYJ393V | MGF CHIP 1/16W 39K | |
| R370 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R372 | ERJ3GEYJ393V | MGF CHIP 1/16W 39K | |
| R373 | ERJ3GEYJ303V | MGF CHIP 1/16W 30K | |
| R374 | ERJ3GEYJ822V | MGF CHIP 1/16W 8.2K | |
| R375 | ERJ3GEYJ333V | MGF CHIP 1/16W 33K | |
| R376 | ERJ3GEYJ822V | MGF CHIP 1/16W 8.2K | |
| R377 | ERJ3GEYJ333V | MGF CHIP 1/16W 33K | |
| R378 | ERJ3GEYJ333V | MGF CHIP 1/16W 33K | |
| R379 | ERJ3GEYJ822V | MGF CHIP 1/16W 8.2K | |
| R380 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R381 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R382 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R383 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 | |
| R384 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R385 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R387 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R388 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R391 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 | |
| R393 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R394 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 | |
| R399 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 | |
| R400 | ERJ3GEYJ331V | MGF CHIP 1/16W 330 | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| R402 | D0HB912ZA002 | MGF CHIP 1/16W 9.1K | |
| R409 | ERJ3GEYJ473V | MGF CHIP 1/16W 47K | |
| R410 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R411 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R412 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R413 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R414 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R427 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R432 | ERJ3GEYJ104V | MGF CHIP 1/16W 100K | |
| R436 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R603 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 | |
| R608 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R609 | ERJ3GEYJ681V | MGF CHIP 1/16W 680 | |
| R616 | ERJ3GEYJ105V | MGF CHIP 1/16W 1M | |
| R617 | ERJ3GEYJ121V | MGF CHIP 1/16W 120 | |
| R618 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 | |
| R623 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R625 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R639 | ERJ3GEYJ105V | MGF CHIP 1/16W 1M | |
| R641 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 | |
| R643 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 | |
| R644 | ERJ3GEYJ330V | MGF CHIP 1/16W 33 | |
| R645 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 | |
| R646 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 | |
| R651 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R652 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R653 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R659 | ERJ3GEYJ562V | MGF CHIP 1/16W 5.6K | |
| R662 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R683 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R700 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 | |
| R701 | ERJ3GEYJ100V | MGF CHIP 1/16W 10 | |
| R702 | ERJ3GEYJ100V | MGF CHIP 1/16W 10 | |
| R703 | ERJ3GEYJ100V | MGF CHIP 1/16W 10 | |
| R704 | ERJ3GEYJ100V | MGF CHIP 1/16W 10 | |
| R705 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R706 | ERJ3GEYJ393V | MGF CHIP 1/16W 39K | |
| R707 | ERJ8GEYJ101V | MGF CHIP 1/8W 100 | |
| R708 | ERJ3GEYJ393V | MGF CHIP 1/16W 39K | |
| R709 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R712 | ERJ3GEYJ332V | MGF CHIP 1/16W 3.3K | |
| R713 | ERJ3GEYJ332V | MGF CHIP 1/16W 3.3K | |
| R714 | ERJ3GEYJ332V | MGF CHIP 1/16W 3.3K | |
| R715 | ERJ3GEYJ332V | MGF CHIP 1/16W 3.3K | |
| R718 | ERJ3GEYJ512V | MGF CHIP 1/16W 5.1K | |
| R719 | ERJ3GEYJ183V | MGF CHIP 1/16W 18K | |
| R720 | ERJ3GEYJ114V | MGF CHIP 1/16W 110K | |
| R721 | ERJ3GEYJ183V | MGF CHIP 1/16W 18K | |
| R722 | ERJ3GEYJ114V | MGF CHIP 1/16W 110K | |
| R723 | ERJ3GEYJ363V | MGF CHIP 1/16W 36K | |
| R724 | ERJ3GEYJ363V | MGF CHIP 1/16W 36K | |
| R726 | ERJ3GEYJ512V | MGF CHIP 1/16W 5.1K | |
| R730 | ERJ3GEYJ562V | MGF CHIP 1/16W 5.6K | |
| R732 | ERJ3GEYJ562V | MGF CHIP 1/16W 5.6K | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|----------|----------|------------------------|---------|
| R735 | ERJ3GEYJ363V | MGF CHIP 1/16W 36K | |
| R736 | ERJ3GEYJ363V | MGF CHIP 1/16W 36K | |
| R737 | ERJ3GEYJ114V | MGF CHIP 1/16W 110K | |
| R738 | ERJ3GEYJ183V | MGF CHIP 1/16W 18K | |
| R739 | ERJ3GEYJ114V | MGF CHIP 1/16W 110K | |
| R740 | ERJ3GEYJ183V | MGF CHIP 1/16W 18K | |
| R744 | ERJ8GEYJ3R9V | MGF CHIP 1/8W 3.9 | |
| R745 | ERJ8GEYJ3R9V | MGF CHIP 1/8W 3.9 | |
| R746 | ERJ3GEYJ332V | MGF CHIP 1/16W 3.3K | |
| R747 | ERJ3GEYJ332V | MGF CHIP 1/16W 3.3K | |
| R748 | ERJ3GEYJ332V | MGF CHIP 1/16W 3.3K | |
| R749 | ERJ3GEYJ332V | MGF CHIP 1/16W 3.3K | |
| R750 | ERJ3GEYJ105V | MGF CHIP 1/16W 1M | |
| R751 | ERJ3GEYJ105V | MGF CHIP 1/16W 1M | |
| R752 | ERJ3EKF1002V | MGF CHIP 1/16W 10K | |
| R753 | ERJ3GEYJ332V | MGF CHIP 1/16W 3.3K | |
| R1003 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R1004 | ERJ3GEYJ682V | MGF CHIP 1/16W 6.8K | |
| R1006 | ERJ3GEYJ224V | MGF CHIP 1/16W 220K | |
| R1007 | ERJ3GEYJ224V | MGF CHIP 1/16W 220K | |
| R1009 | ERJ3GEYJ223V | MGF CHIP 1/16W 22K | |
| R1011 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R1012 | D0HB393ZA002 | MGF CHIP 1/16W 39K | |
| R1013 | ERJ3GEYJ222V | MGF CHIP 1/16W 2.2K | |
| R1016 | D0HB203ZA002 | MGF CHIP 1/16W 20K | |
| R1017 | D0HB473ZA002 | MGF CHIP 1/16W 47K | |
| R1019 | ERJ3GEYJ224V | MGF CHIP 1/16W 220K | |
| R1020 | ERJ3GEYJ471V | MGF CHIP 1/16W 470 | |
| R1021 | ERJ3GEYJ471V | MGF CHIP 1/16W 470 | |
| R1022 | ERJ3GEYJ562V | MGF CHIP 1/16W 5.6K | |
| R1023 | ERJ3GEYJ223V | MGF CHIP 1/16W 22K | |
| R1026 | ERJ3GEYJ682V | MGF CHIP 1/16W 6.8K | |
| R1027 | ERJ3GEYJ682V | MGF CHIP 1/16W 6.8K | |
| R1028 | ERJ3GEYJ471V | MGF CHIP 1/16W 470 | |
| R1029 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R1030 | ERJ3GEYJ682V | MGF CHIP 1/16W 6.8K | |
| R1031 | D0HB203ZA002 | MGF CHIP 1/16W 20K | |
| R1032 | D0HB151ZA002 | MGF CHIP 1/16W 150 | |
| R1033 | D0HB103ZA002 | MGF CHIP 1/16W 10K | |
| R1034 | D0HB362ZA002 | MGF CHIP 1/16W 3.6K | |
| R1035 | D0HB390ZA003 | MGF CHIP 1/16W 39 | |
| R1036 | D0HB272ZA002 | MGF CHIP 1/16W 2.7K | |
| R1037 | D0HB273ZA002 | MGF CHIP 1/16W 27K | |
| R1038 | D0HB390ZA003 | MGF CHIP 1/16W 39 | |
| R1039 | D0HB302ZA002 | MGF CHIP 1/16W 3K | |
| R1040 | D0HB622ZA002 | MGF CHIP 1/16W 6.2K | |
| R1041 | D0HB390ZA003 | MGF CHIP 1/16W 39 | |
| R1043 | D0HB302ZA002 | MGF CHIP 1/16W 3K | |
| R1044 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R1045 | ERJ6GEYJ271V | MGF CHIP 1/10W 270 | |
| R1046 | ERJ3GEYJ222V | MGF CHIP 1/16W 2.2K | |
| R1060 | ERJ3GEYJ821V | MGF CHIP 1/16W 820 | |
| R1071 | ERJ3GEYJ473V | MGF CHIP 1/16W 47K | |
| R1072 | ERJ3GEYJ473V | MGF CHIP 1/16W 47K | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| R1073 | ERJ3GEYJ473V | MGF CHIP 1/16W 47K | |
| R1074 | ERJ3GEYJ473V | MGF CHIP 1/16W 47K | |
| R1084 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R1085 | ERJ3GEYJ392V | MGF CHIP 1/16W 3.9K | |
| R1086 | ERJ3GEYJ223V | MGF CHIP 1/16W 22K | |
| R1087 | ERJ3GEYJ473V | MGF CHIP 1/16W 47K | |
| R1101 | ERJ8GEYJR56V | MGF CHIP 1/8W 0.56 | |
| R1102 | ERJ8GEYJR56V | MGF CHIP 1/8W 0.56 | |
| R1103 | ERJ3GEYJ223V | MGF CHIP 1/16W 22K | |
| R1104 | ERJ3GEYJ560V | MGF CHIP 1/16W 56 | |
| R1105 | ERJ3GEYJ222V | MGF CHIP 1/16W 2.2K | |
| R1106 | ERJ3GEYJ561V | MGF CHIP 1/16W 560 | |
| R1107 | ERJ3GEYJ562V | MGF CHIP 1/16W 5.6K | |
| R1108 | ERJ3GEYJ473V | MGF CHIP 1/16W 47K | |
| R1109 | ERJ3GEYJ473V | MGF CHIP 1/16W 47K | |
| R1110 | ERJ3GEYJ223V | MGF CHIP 1/16W 22K | |
| R1111 | ERJ3GEYJ223V | MGF CHIP 1/16W 22K | |
| R1601 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R1602 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R1603 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R1604 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R1605 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R1606 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R1610 | ERJ3GEYJ273V | MGF CHIP 1/16W 27K | |
| R1611 | ERJ3GEYJ683V | MGF CHIP 1/16W 68K | |
| R1612 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R1613 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R2001 | ERJ3GEYJ152V | MGF CHIP 1/16W 1.5K | |
| R2003 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R2004 | ERJ3GEYJ332V | MGF CHIP 1/16W 3.3K | |
| R2008 | ERJ8GEYJR33V | MGF CHIP 1/8W 0.33 | |
| R2010 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R2011 | ERJ3GEYJ223V | MGF CHIP 1/16W 22K | |
| R2012 | ERJ3GEYJ184V | MGF CHIP 1/16W 180K | |
| R2013 | ERJ3GEYJ332V | MGF CHIP 1/16W 3.3K | |
| R2014 | ERJ3GEYJ684V | MGF CHIP 1/16W 680K | |
| R2015 | ERJ3GEYJ682V | MGF CHIP 1/16W 6.8K | |
| R2016 | ERJ3GEYJ684V | MGF CHIP 1/16W 680K | |
| R2021 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R2022 | ERJ3GEYJ221V | MGF CHIP 1/16W 220 | |
| R2023 | ERJ8GEYJR33V | MGF CHIP 1/8W 0.33 | |
| R2025 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R2026 | ERJ3GEYJ820V | MGF CHIP 1/16W 82 | |
| R2027 | ERJ3GEYJ471V | MGF CHIP 1/16W 470 | |
| R2028 | ERJ3GEYJ391V | MGF CHIP 1/16W 390 | |
| R2029 | ERJ3GEYJ391V | MGF CHIP 1/16W 390 | |
| R2030 | ERJ3GEYJ471V | MGF CHIP 1/16W 470 | |
| R2031 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R2032 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R3002 | ERJ3GEYJ154V | MGF CHIP 1/16W 150K | |
| R3003 | ERJ3GEYJ152V | MGF CHIP 1/16W 1.5K | |
| R3004 | ERJ3GEYJ270V | MGF CHIP 1/16W 27 | |
| R3005 | ERJ3GEYJ221V | MGF CHIP 1/16W 220 | |
| R3006 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|----------|----------|------------------------|---------|
| R3008 | ERJ3GEYJ122V | MGF CHIP 1/16W 1.2K | |
| R3009 | ERJ3GEYJ392V | MGF CHIP 1/16W 3.9K | |
| R3010 | ERJ3GEYJ122V | MGF CHIP 1/16W 1.2K | |
| R3011 | ERJ3GEYJ271V | MGF CHIP 1/16W 270 | |
| R3015 | ERJ3GEYJ393V | MGF CHIP 1/16W 39K | |
| R3016 | ERJ3GEYJ821V | MGF CHIP 1/16W 820 | |
| R3017 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R3018 | ERJ3GEYJ471V | MGF CHIP 1/16W 470 | |
| R3022 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R3023 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R3024 | ERJ6GEYJ560V | MGF CHIP 1/10W 56 | |
| R3025 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R3026 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R3031 | ERJ3GEYJ821V | MGF CHIP 1/16W 820 | |
| R3032 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R3033 | ERJ3GEYJ182V | MGF CHIP 1/16W 1.8K | |
| R3034 | ERJ3GEYJ821V | MGF CHIP 1/16W 820 | |
| R3035 | ERJ3GEYJ182V | MGF CHIP 1/16W 1.8K | |
| R3036 | ERJ3GEYJ471V | MGF CHIP 1/16W 470 | |
| R3037 | ERJ3GEYJ332V | MGF CHIP 1/16W 3.3K | |
| R3038 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R3039 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R3040 | ERJ3GEYJ222V | MGF CHIP 1/16W 2.2K | |
| R3041 | ERJ3GEYJ681V | MGF CHIP 1/16W 680 | |
| R3044 | ERJ3GEYJ681V | MGF CHIP 1/16W 680 | |
| R3045 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R3048 | ERJ3GEYJ681V | MGF CHIP 1/16W 680 | |
| R3050 | ERJ3GEYJ821V | MGF CHIP 1/16W 820 | |
| R3129 | ERJ3GEYJ391V | MGF CHIP 1/16W 390 | |
| R3130 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R3140 | ERJ3GEYJ122V | MGF CHIP 1/16W 1.2K | |
| R3150 | ERJ3GEYJ152V | MGF CHIP 1/16W 1.5K | |
| R3151 | ERJ3GEYJ183V | MGF CHIP 1/16W 18K | |
| R3152 | ERJ3GEYJ821V | MGF CHIP 1/16W 820 | |
| R3153 | ERJ3GEYJ272V | MGF CHIP 1/16W 2.7K | |
| R3154 | ERJ3GEYJ332V | MGF CHIP 1/16W 3.3K | |
| R3180 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R3181 | ERJ3GEYJ473V | MGF CHIP 1/16W 47K | |
| R3182 | ERJ3GEYJ473V | MGF CHIP 1/16W 47K | |
| R3183 | ERJ3GEYJ152V | MGF CHIP 1/16W 1.5K | |
| R3184 | ERJ3GEYJ821V | MGF CHIP 1/16W 820 | |
| R3185 | ERJ3GEYJ182V | MGF CHIP 1/16W 1.8K | |
| R3186 | ERJ3GEYJ222V | MGF CHIP 1/16W 2.2K | |
| R3215 | ERJ3GEYJ104V | MGF CHIP 1/16W 100K | |
| R4002 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R4003 | ERJ3GEYJ222V | MGF CHIP 1/16W 2.2K | |
| R4006 | ERJ3GEYJ183V | MGF CHIP 1/16W 18K | |
| R4007 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R4009 | ERJ3GEYJ2R2V | MGF CHIP 1/16W 2.2 | |
| R4010 | ERJ3GEYJ2R2V | MGF CHIP 1/16W 2.2 | |
| R4011 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R4012 | ERJ3GEYJ104V | MGF CHIP 1/16W 100K | |
| R4013 | ERJ3GEYJ104V | MGF CHIP 1/16W 100K | |
| R4014 | ERJ3GEYJ433V | MGF CHIP 1/16W 43K | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| R4015 | ERJ3GEYJ561V | MGF CHIP 1/16W 560 | |
| R4016 | ERJ3GEYJ561V | MGF CHIP 1/16W 560 | |
| R4017 | ERJ3GEYJ123V | MGF CHIP 1/16W 12K | |
| R4018 | ERJ3GEYJ333V | MGF CHIP 1/16W 33K | |
| R4019 | ERJ3GEYJ223V | MGF CHIP 1/16W 22K | |
| R4020 | ERJ3GEYJ183V | MGF CHIP 1/16W 18K | |
| R4021 | ERJ3GEYJ222V | MGF CHIP 1/16W 2.2K | |
| R4022 | ERJ3GEYJ223V | MGF CHIP 1/16W 22K | |
| R4024 | ERJ3GEYJ332V | MGF CHIP 1/16W 3.3K | |
| R4025 | ERJ3GEYJ332V | MGF CHIP 1/16W 3.3K | |
| R4026 | ERJ3GEYJ333V | MGF CHIP 1/16W 33K | |
| R4027 | ERJ3GEYJ183V | MGF CHIP 1/16W 18K | |
| R4029 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R4030 | ERJ3GEYJ680V | MGF CHIP 1/16W 68 | |
| R4031 | ERJ3GEYJ223V | MGF CHIP 1/16W 22K | |
| R4032 | ERJ3GEYJ222V | MGF CHIP 1/16W 2.2K | |
| R4033 | ERJ3GEYJ222V | MGF CHIP 1/16W 2.2K | |
| R4034 | ERJ3GEYJ223V | MGF CHIP 1/16W 22K | |
| R4035 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R4037 | ERJ3GEYJ473V | MGF CHIP 1/16W 47K | |
| R4040 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 | |
| R4041 | ERJ3GEYJ222V | MGF CHIP 1/16W 2.2K | |
| R4042 | ERJ3GEYJ104V | MGF CHIP 1/16W 100K | |
| R4043 | ERJ3GEYJ822V | MGF CHIP 1/16W 8.2K | |
| R4044 | ERJ3GEYJ562V | MGF CHIP 1/16W 5.6K | |
| R4045 | ERJ3GEYJ331V | MGF CHIP 1/16W 330 | |
| R4046 | ERJ3GEYJ334V | MGF CHIP 1/16W 330K | |
| R4047 | ERJ3GEYJ683V | MGF CHIP 1/16W 68K | |
| R4050 | ERJ3GEYJ393V | MGF CHIP 1/16W 39K | |
| R4051 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R4052 | ERJ3GEYJ223V | MGF CHIP 1/16W 22K | |
| R4053 | ERJ3GEYJ823V | MGF CHIP 1/16W 82K | |
| R4054 | ERJ3GEYJ433V | MGF CHIP 1/16W 43K | |
| R4055 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 | |
| R4056 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R4057 | ERJ3GEYJ100V | MGF CHIP 1/16W 10 | |
| R4058 | ERJ3GEYJ223V | MGF CHIP 1/16W 22K | |
| R6004 | ERJ3GEYJ332V | MGF CHIP 1/16W 3.3K | |
| R6006 | ERJ3GEYJ223V | MGF CHIP 1/16W 22K | |
| R6009 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R6010 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R6011 | ERJ3GEYJ562V | MGF CHIP 1/16W 5.6K | |
| R6015 | ERJ3GEYJ273V | MGF CHIP 1/16W 27K | |
| R6016 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R6017 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R6018 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R6019 | ERJ3GEYJ474V | MGF CHIP 1/16W 470K | |
| R6020 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R6021 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R6024 | ERJ3GEYJ104V | MGF CHIP 1/16W 100K | |
| R6025 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R6026 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R6027 | ERJ3GEYJ272V | MGF CHIP 1/16W 2.7K | |
| R6028 | ERJ3GEYJ332V | MGF CHIP 1/16W 3.3K | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| R6029 | ERJ3GEYJ332V | MGF CHIP 1/16W 3.3K | |
| R6030 | ERJ3GEYJ272V | MGF CHIP 1/16W 2.7K | |
| R6032 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R6034 | ERJ3GEYJ152V | MGF CHIP 1/16W 1.5K | |
| R6035 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R6036 | ERJ3GEYJ563V | MGF CHIP 1/16W 56K | |
| R6037 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R6038 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R6039 | ERJ3GEYJ223V | MGF CHIP 1/16W 22K | |
| R6040 | ERJ3GEYJ561V | MGF CHIP 1/16W 560 | |
| R6041 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R6042 | ERJ3GEYJ124V | MGF CHIP 1/16W 120K | |
| R6046 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R6047 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R6048 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R6049 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R6050 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R6051 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R6052 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R6054 | ERJ3GEYJ223V | MGF CHIP 1/16W 22K | |
| R6056 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R6058 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R6059 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R6060 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R6062 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R6064 | ERJ3GEYJ563V | MGF CHIP 1/16W 56K | |
| R6066 | ERJ3GEYJ682V | MGF CHIP 1/16W 6.8K | |
| R6068 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R6070 | ERJ3GEYJ473V | MGF CHIP 1/16W 47K | |
| R6072 | ERJ3GEYJ392V | MGF CHIP 1/16W 3.9K | |
| R6073 | ERJ3GEYJ223V | MGF CHIP 1/16W 22K | |
| R6074 | ERJ3GEYJ223V | MGF CHIP 1/16W 22K | |
| R6081 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R6082 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R6084 | ERJ3GEYJ561V | MGF CHIP 1/16W 560 | |
| R6085 | ERJ3GEYJ561V | MGF CHIP 1/16W 560 | |
| R6086 | ERJ3GEYJ561V | MGF CHIP 1/16W 560 | |
| R6087 | ERJ3GEYJ561V | MGF CHIP 1/16W 560 | |
| R6088 | ERJ3GEYJ561V | MGF CHIP 1/16W 560 | |
| R6089 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R6090 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R6091 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R6092 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R6093 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R6094 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R6095 | ERJ3GEYJ563V | MGF CHIP 1/16W 56K | |
| R6096 | ERJ3GEYJ104V | MGF CHIP 1/16W 100K | |
| R6097 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R6099 | ERJ3GEYJ473V | MGF CHIP 1/16W 47K | |
| R6102 | D0HB183ZA002 | MGF CHIP 1/16W 18K | |
| R6103 | ERJ3GEYJ272V | MGF CHIP 1/16W 2.7K | |
| R6104 | D0HB103ZA002 | MGF CHIP 1/16W 10K | |
| R6108 | ERJ3GEYJ224V | MGF CHIP 1/16W 220K | |
| R6110 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| R6111 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R6112 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R6113 | ERJ3GEYJ272V | MGF CHIP 1/16W 2.7K | |
| R6114 | ERJ3GEYJ154V | MGF CHIP 1/16W 150K | |
| R6115 | ERJ3GEYJ393V | MGF CHIP 1/16W 39K | |
| R6116 | ERJ3GEYJ393V | MGF CHIP 1/16W 39K | |
| R6119 | ERJ8GEYJ101V | MGF CHIP 1/8W 100 | |
| R6139 | ERJ3GEYJ104V | MGF CHIP 1/16W 100K | |
| R6143 | ERJ3GEYJ271V | MGF CHIP 1/16W 270 | |
| R6144 | ERJ3GEYJ271V | MGF CHIP 1/16W 270 | |
| R6145 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R6146 | ERJ3GEYJ224V | MGF CHIP 1/16W 220K | |
| R6147 | ERJ3GEYJ222V | MGF CHIP 1/16W 2.2K | |
| R6148 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R6149 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R6191 | ERJ3GEYJ222V | MGF CHIP 1/16W 2.2K | |
| R6201 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R6202 | ERJ3GEYJ223V | MGF CHIP 1/16W 22K | |
| R6209 | ERJ3GEYJ225V | MGF CHIP 1/16W 2.2M | |
| R6210 | ERJ3GEYJ561V | MGF CHIP 1/16W 560 | |
| R6215 | ERJ3GEYJ132V | MGF CHIP 1/16W 1.3K | |
| R6217 | ERJ3GEYJ392V | MGF CHIP 1/16W 3.9K | |

## CAPACITORS

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| C301 | ECJ1VC1H330J | C CHIP 50V 33PF | |
| C302 | ECJ1VC1H560J | C CHIP 50V 56PF | |
| C305 | ECJ1VC1H470J | C CHIP 50V 47PF | |
| C306 | ECJ2VB1C104K | C CHIP 16V 0.1UF | |
| C307 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C309 | ECST0JY106 | TANTALUM CHIP 6.3V 10UF | |
| C310 | ECJ2YB1A105K | C CHIP 10V 1UF | |
| C311 | ECJ2YB1A105K | C CHIP 10V 1UF | |
| C312 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C314 | ECST0JY106 | TANTALUM CHIP 6.3V 10UF | |
| C316 | ECJ2YB1A105K | C CHIP 10V 1UF | |
| C317 | ECJ2YB1A105K | C CHIP 10V 1UF | |
| C319 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C320 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C326 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C327 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C331 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C333 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C335 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C338 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C339 | ECJ2VF1C105Z | C CHIP 16V 1UF | |
| C340 | ECJ1VB1H103K | C CHIP 50V 0.01UF | |
| C341 | ECJ1VB1H102K | C CHIP 50V 1000PF | |
| C342 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C345 | ECJ1VB1H471K | C CHIP 50V 470PF | |
| C346 | ECJ1VB1H471K | C CHIP 50V 470PF | |
| C347 | ECJ1VB1H102K | C CHIP 50V 1000PF | |
| C357 | ECUE1C104ZFV | C CHIP 16V 0.1UF | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| C359 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C360 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C605 | ECST0JX226 | TANTALUM CHIP 6.3V 22UH | |
| C606 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C607 | ECJ1VC1H150J | C CHIP 50V 15PF | |
| C611 | ECJ1VC1H120J | C CHIP 50V 12PF | |
| C613 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C614 | F1J1C1050011 | C CHIP 16V 1UF | |
| C615 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C616 | ECJ1VB1C104K | C CHIP 16V 0.1UF | |
| C617 | ECUE1C104ZFV | C CHIP 16V 0.1UF | |
| C618 | ECJ1VC1H080D | C CHIP 50V 8PF | |
| C619 | ECJ1VC1H020D | C CHIP 50V 2PF | |
| C623 | ECEV1CA100S | ELECTROLYTIC CHIP 16V 10UF | |
| C633 | ECJ2FB1A225K | C CHIP 10V 22UF | |
| C634 | ECJ2FB1A225K | C CHIP 10V 22UF | |
| C636 | ECJ1VF1A105Z | C CHIP 10V 1UF | |
| C638 | ECJ1VF1A105Z | C CHIP 10V 1UF | |
| C639 | ECJ1VF1A105Z | C CHIP 10V 1UF | |
| C640 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C641 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C642 | ECJ2YB1A105K | C CHIP 10V 1UF | |
| C643 | ECST0JY106 | TANTALUM CHIP 6.3V 10UF | |
| C644 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C645 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C646 | ECST0JY106 | TANTALUM CHIP 6.3V 10UF | |
| C647 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C663 | ECJ1VC1H100D | C CHIP 50V 10PF | |
| C703 | ECJ2YF1A475Z | C CHIP 10V 4.7UF | |
| C704 | ECJ2YF1A475Z | C CHIP 10V 4.7UF | |
| C706 | ECJ2YF1A475Z | C CHIP 10V 4.7UF | |
| C707 | ECJ2YF1A475Z | C CHIP 10V 4.7UF | |
| C708 | ECEV1CA470S | ELECTROLYTIC CHIP 16V 47UF | |
| C709 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C710 | ECJ1VB1H103K | C CHIP 50V 0.01UF | |
| C1002 | ECJ1VB1C104K | C CHIP 16V 0.1UF | |
| C1003 | ECJ1VB1C104K | C CHIP 16V 0.1UF | |
| C1005 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C1007 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C1008 | ECJ1VC1H101J | C CHIP 50V 100PF | |
| C1009 | ECJ1VB1A105K | C CHIP 10V 1UF | |
| C1010 | ECJ1VB1C104K | C CHIP 16V 0.1UF | |
| C1011 | ECJ1VB1H472K | C CHIP 50V 4700PF | |
| C1012 | ECJ1VB1H222K | C CHIP 50V 2200PF | |
| C1013 | ECJ1VC1H101J | C CHIP 50V 100PF | |
| C1014 | ECJ1VC1H470J | C CHIP 50V 47PF | |
| C1015 | ECJ1VC1H101J | C CHIP 50V 100PF | |
| C1016 | ECJ1VC1H101J | C CHIP 50V 100PF | |
| C1017 | ECJ1VC1H470J | C CHIP 50V 47PF | |
| C1018 | ECJ1VB1H472K | C CHIP 50V 4700PF | |
| C1019 | ECJ1VB1H472K | C CHIP 50V 4700PF | |
| C1020 | ECJ2FB1C105K | C CHIP 16V 1UF | |
| C1021 | ECEV1CA470S | ELECTROLYTIC CHIP 16V 47UF | |
| C1022 | ECJ3YB1C475K | C CHIP 16V 4.7UF | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| C1023 | VCUSJBJ335KB | C CHIP 6.3V 3.3UF | |
| C1024 | ECST1AY475 | TANTALUM CHIP 16V 4.7UF | |
| C1025 | ECJ1VB1H471K | C CHIP 50V 470PF | |
| C1026 | ECJ2FB0J475K | C CHIP 6.3V 4.7UF | |
| C1028 | ECJ1VB1H102K | C CHIP 50V 1000PF | |
| C1029 | ECJ2FB1C105K | C CHIP 16V 1UF | |
| C1030 | ECJ2VF1C105Z | C CHIP 16V 1UF | |
| C1031 | ECEV1CA100S | ELECTROLYTIC CHIP 16V 10UF | |
| C1032 | ECJ2VF1C105Z | C CHIP 16V 1UF | |
| C1033 | ECJ1VB1C104K | C CHIP 16V 0.1UF | |
| C1034 | ECJ2FB1C105K | C CHIP 16V 1UF | |
| C1035 | ECJ2FB1C105K | C CHIP 16V 1UF | |
| C1036 | ECJ1VB1H102K | C CHIP 50V 1000PF | |
| C1037 | ECJ2FB0J475K | C CHIP 6.3V 4.7UF | |
| C1039 | ECJ1VB1H102K | C CHIP 50V 1000PF | |
| C1040 | ECJ2VF1C105Z | C CHIP 16V 1UF | |
| C1041 | ECEV1CA100S | ELECTROLYTIC CHIP 16V 10UF | |
| C1042 | ECEV0JA470S | ELECTROLYTIC CHIP 6.3V 47UF | |
| C1044 | ECST0JY226R | TANTALUM CHIP 6.3V 22UF | |
| C1045 | ECJ1VF1A105Z | C CHIP 10V 1UF | |
| C1046 | ECJ2VF1C105Z | C CHIP 16V 1UF | |
| C1049 | ECJ1VB1H102K | C CHIP 50V 1000PF | |
| C1055 | ECJ2VF1C105Z | C CHIP 16V 1UF | |
| C1056 | ECJ2FB1C105K | C CHIP 16V 1UF | |
| C1057 | ECJ2FB1C105K | C CHIP 16V 1UF | |
| C1060 | ECJ1VF1A105Z | C CHIP 10V 1UF | |
| C1061 | ECJ1VC1H470J | C CHIP 50V 47PF | |
| C1062 | ECJ1VC1H470J | C CHIP 50V 47PF | |
| C1063 | ECJ1VC1H101J | C CHIP 50V 100PF | |
| C1101 | ECJ2YB0J225K | C CHIP 6.3V 2.2UF | |
| C2001 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C2002 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C2003 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C2007 | ECEV0JA220S | ELECTROLYTIC CHIP 6.3V 22UF | |
| C2008 | ECJ2VB1E333K | C CHIP 25V 0.033UF | |
| C2010 | ECJ1VB1C683K | C CHIP 16V 0.068UF | |
| C2011 | ECJ2YB1C334K | C CHIP 16V 0.33UF | |
| C2012 | ECJ1VB1C473K | C CHIP 16V 0.047UF | |
| C2013 | ECJ1VB1C473K | C CHIP 16V 0.047UF | |
| C2015 | ECJ1VB1H152K | C CHIP 50V 1500PF | |
| C2016 | ECJ1VB1H331K | C CHIP 50V 330PF | |
| C2017 | ECJ2YB1A105K | C CHIP 10V 1UF | |
| C2021 | ECJ1VF1H473Z | C CHIP 50V 0.047UF | |
| C2022 | ECJ2VF1E473Z | C CHIP 25V 0.047UF | |
| C2023 | ECJ1VB1C104K | C CHIP 16V 0.1UF | |
| C2024 | ECJ2YB1A105K | C CHIP 10V 1UF | |
| C2025 | ECJ1VB1E103K | C CHIP 25V 0.01UF | |
| C2030 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C2031 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C2032 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C2040 | ECEV1CA100S | ELECTROLYTIC CHIP 16V 10UF | |
| C2045 | ECJ1VB1E103K | C CHIP 25V 0.01UF | |
| C3001 | VCUSJBJ335KB | C CHIP 6.3V 3.3UF | |
| C3002 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|----------|----------|-------------------------|---------|
| C3003 | ECST0JY226R | TANTALUM CHIP 6.3V 22UF | |
| C3005 | ECJ1VC1H220J | C CHIP 50V 22PF | |
| C3006 | ECJ1VB1H332K | C CHIP 50V 3300PF | |
| C3007 | ECJ2VF1H104Z | C CHIP 50V 0.1UF | |
| C3008 | ECJ1VB1H103K | C CHIP 50V 0.01UF | |
| C3009 | ECJ2VF1H104Z | C CHIP 50V 0.1UF | |
| C3010 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C3011 | ECJ1VC1H221J | C CHIP 50V 220PF | |
| C3012 | ECJ1VB1H821K | C CHIP 50V 820PF | |
| C3013 | ECJ1VC1H560J | C CHIP 50V 56PF | |
| C3014 | ECJ1VC1H331J | C CHIP 50V 330PF | |
| C3015 | ECJ1VC1H561J | C CHIP 50V 560PF | |
| C3017 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C3018 | ECJ1VB1C104K | C CHIP 16V 0.1UF | |
| C3019 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C3021 | ECST0JY226R | TANTALUM CHIP 6.3V 22UF | |
| C3022 | ECJ2YB1A105K | C CHIP 10V 1UF | |
| C3023 | ECJ1VB1C473K | C CHIP 16V 0.047UF | |
| C3024 | ECJ2VF1C105Z | C CHIP 16V 1UF | |
| C3025 | ECJ1VB1H103K | C CHIP 50V 0.01UF | |
| C3028 | ECJ1VB1H103K | C CHIP 50V 0.01UF | |
| C3029 | ECJ1VB1H103K | C CHIP 50V 0.01UF | |
| C3030 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C3031 | ECJ1VB1A224K | C CHIP 10V 0.22UF | |
| C3032 | ECJ1VB1H332K | C CHIP 50V 3300PF | |
| C3033 | ECJ2YB0J225K | C CHIP 6.3V 2.2UF | |
| C3034 | ECJ2VF1C105Z | C CHIP 16V 1UF | |
| C3036 | F1K1C4750017 | C CHIP 16V 4.7UF | |
| C3038 | ECJ1VC1H560J | C CHIP 50V 56PF | |
| C3039 | ECJ1VC1H180J | C CHIP 50V 18PF | |
| C3040 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C3041 | ECJ1VB1C104K | C CHIP 16V 0.1UF | |
| C3042 | ECEV0JA220S | ELECTROLYTIC CHIP 6.3V 22UF | |
| C3043 | ECST0JY226R | TANTALUM CHIP 6.3V 22UF | |
| C3045 | ECEV1HA3R3S | ELECTROLYTIC CHIP 50V 3.3UF | |
| C3046 | ECEV0GA221S | ELECTROLYTIC CHIP 4V 220UF | |
| C3047 | ECJ2YB1A105K | C CHIP 10V 1UF | |
| C3048 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C3053 | ECJ1VC1H390J | C CHIP 50V 39PF | |
| C3054 | ECJ1VC1H101J | C CHIP 50V 100PF | |
| C3055 | ECJ1VC1H181J | C CHIP 50V 180PF | |
| C3057 | ECJ1VC1H180J | C CHIP 50V 18PF | |
| C3058 | ECJ1VC1H120J | C CHIP 50V 12PF | |
| C3059 | ECJ1VC1H100D | C CHIP 50V 10PF | |
| C3060 | ECJ1VC1H120J | C CHIP 50V 12PF | |
| C3061 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C3068 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C3070 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C3072 | ECJ1VB1H103K | C CHIP 50V 0.01UF | |
| C3073 | ECJ1VB1C104K | C CHIP 16V 0.1UF | |
| C3074 | ECEV0JA220S | ELECTROLYTIC CHIP 6.3V 22UF | |
| C3075 | ECJ1VB1H103K | C CHIP 50V 0.01UF | |
| C3077 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C3078 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| C3079 | ECJ1VB1H102K | C CHIP 50V 1000PF | |
| C3080 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C3081 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C3085 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C3098 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C3107 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C3132 | ECJ2VF1C105Z | C CHIP 16V 1UF | |
| C3135 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C3139 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C3150 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C3152 | ECJ1VB1H681K | C CHIP 50V 680PF | |
| C3153 | ECJ1VB1H681K | C CHIP 50V 680PF | |
| C3157 | ECJ1VC1H470J | C CHIP 50V 47PF | |
| C3158 | ECJ1VC1H080C | C CHIP 50V 8PF | |
| C4002 | F1J1A1050002 | C CHIP 10V 1UF | |
| C4003 | ECJ1VB1H102K | C CHIP 50V 1000PF | |
| C4004 | ECUT2A472JCM | C CHIP 100V 4700PF | |
| C4005 | ECJ2VB1H682K | C CHIP 50V 6800PF | |
| C4006 | ECJ1VB1E223K | C CHIP 25V 0.022UF | |
| C4007 | ECJ2YB1A105K | C CHIP 10V 1UF | |
| C4008 | ECST0JY226R | TANTALUM CHIP 6.3V 22UF | |
| C4009 | ECJ2VF1H104Z | C CHIP 50V 0.1UF | |
| C4011 | ECJ1VB1H472K | C CHIP 50V 4700PF | |
| C4012 | ECJ1VB1H103K | C CHIP 50V 0.01UF | |
| C4013 | ECJ1VF1E104Z | C CHIP 25V 0.1UF | |
| C4014 | ECJ1VF1E104Z | C CHIP 25V 0.1UF | |
| C4015 | ECJ2VF1E104Z | C CHIP 25V 0.1UF | |
| C4016 | ECST0JY226R | TANTALUM CHIP 6.3V 22UF | |
| C4017 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C4019 | F1J1A1050002 | C CHIP 10V 1UF | |
| C4021 | ECEV1CA100S | ELECTROLYTIC CHIP 16V 10UF | |
| C4022 | ECJ2YB1C474K | C CHIP 16V 0.47UF | |
| C4023 | ECST0JY475 | TANTALUM CHIP 6.3V 4.7UF | |
| C4026 | ECJ2VB1C104K | C CHIP 16V 0.1UF | |
| C4027 | ECJ1VB1H153K | C CHIP 50V 0.015UF | |
| C4028 | ECST0JY106 | TANTALUM CHIP 6.3V 10UF | |
| C4030 | ECST0JY475 | TANTALUM CHIP 6.3V 4.7UF | |
| C4031 | ECJ1VB1H122K | C CHIP 50V 1200PF | |
| C4032 | F1J1A1050004 | C CHIP 10V 1UF | |
| C4033 | ECJ1VB1H272K | C CHIP 50V 2700PF | |
| C4034 | ECJ1VB1H103K | C CHIP 50V 0.01UF | |
| C4035 | ECJ2VF1C105Z | C CHIP 16V 1UF | |
| C4036 | ECJ2VF1C105Z | C CHIP 16V 1UF | |
| C4039 | ECJ2YB1C474K | C CHIP 16V 0.47UF | |
| C4041 | ECJ1VB1H222K | C CHIP 50V 2200PF | |
| C6001 | ECJ1VC1H330J | C CHIP 50V 33PF | |
| C6002 | ECJ1VB1A224K | C CHIP 10V 0.22UF | |
| C6004 | ECJ2VF1C105Z | C CHIP 16V 1UF | |
| C6006 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C6007 | ECJ1VC1H120J | C CHIP 50V 12PF | |
| C6008 | ECJ1VC1H100D | C CHIP 50V 10PF | |
| C6009 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C6011 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C6013 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|----------|----------|------------------------|---------|
| C6014 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C6017 | ECJ1VB1C104K | C CHIP 16V 0.1UF | |
| C6018 | ECJ2VF1H104Z | C CHIP 50V 0.1UF | |
| C6020 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C6022 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C6023 | ECJ1VB1H102K | C CHIP 50V 1000PF | |
| C6025 | ECEV0JA470S | ELECTROLYTIC CHIP 6.3V 47UF | |
| C6028 | ECJ1VC1H060D | C CHIP 50V 6PF | |
| C6029 | ECJ2VF1C105Z | C CHIP 16V 1UF | |
| C6031 | ECJ1VB1H103K | C CHIP 50V 0.01UF | |
| C6044 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C6201 | ECJ1VB1C104K | C CHIP 16V 0.1UF | |
| C6202 | ECJ1VB1C104K | C CHIP 16V 0.1UF | |
| C6207 | ECJ1VC1H101J | C CHIP 50V 100PF | |
| C6208 | ECJ2VF1C224Z | C CHIP 16V 0.22UF | |
| C6214 | ECJ1VB1H102K | C CHIP 50V 1000PF | |
| C6220 | ECJ2YF1C155Z | C CHIP 16V 1.5UF | |
| C6221 | ECJ1VB1H102K | C CHIP 50V 1000PF | |
| C6222 | ECJ2YB1A105K | C CHIP 10V 1UF | |
| C6223 | ECST0JY226R | TANTALUM CHIP 6.3V 22UF | |
| C6225 | ECJ1VB1H103K | C CHIP 50V 0.01UF | |

## COILS

| Ref. No. | Part No. | Part Name & Description | Remarks |
|----------|----------|------------------------|---------|
| L302 | G1C470J00006 | COIL CHIP 47UH | |
| L303 | G1C330JA0010 | COIL CHIP 33UH | |
| L305 | G1C3R9J00004 | COIL CHIP 3.9UH | |
| L307 | G1C101J00002 | COIL CHIP 100HF | |
| L308 | G1C100KA0002 | COIL CHIP 10UH | |
| L602 | G1C150J00005 | COIL CHIP 15UH | |
| L605 | G1C150J00002 | COIL CHIP 15UH | |
| L1001 | G1C100MA0059 | COIL CHIP 10UH | |
| L1002 | ELL6SH100M | CHOKE COIL 10UH | |
| L1003 | ELL6SH330M | CHOKE COIL 33UH | |
| L1004 | ELL6SH330M | CHOKE COIL 33UH | |
| L1005 | G1C100MA0065 | CHOKE COIL 10UH | |
| L1006 | G1C100MA0031 | COIL CHIP 10UH | |
| L1007 | G1C100MA0031 | COIL CHIP 10UH | |
| L1008 | G1C100MA0031 | COIL CHIP 10UH | |
| L1009 | G1C470J00006 | COIL CHIP 47UH | |
| L1010 | G1C470J00006 | COIL CHIP 47UH | |
| L1011 | G1C470J00006 | COIL CHIP 47UH | |
| L1012 | G1C100MA0031 | COIL CHIP 10UH | |
| L1014 | G1C100MA0031 | COIL CHIP 10UH | |
| L1015 | G1C100MA0031 | COIL CHIP 10UH | |
| L1017 | ELL6SH330M | CHOKE COIL 33UH | |
| L1018 | ELL6SH101M | CHOKE COIL 100UH | |
| L1019 | G1C100MA0031 | COIL CHIP 10UH | |
| L1020 | G1C100MA0031 | COIL CHIP 10UH | |
| L3001 | G1C220K00013 | COIL CHIP 22UH | |
| L3002 | G1C220K00013 | COIL CHIP 22UH | |
| L3003 | G1C220K00013 | COIL CHIP 22UH | |
| L3004 | G1C220K00013 | COIL CHIP 22UH | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| L3006 | G1C220K00013 | COIL CHIP 22UH | |
| L3009 | G1C820J00001 | COIL CHIP 82UH | |
| L3011 | G1C470J00006 | COIL CHIP 47UH | |
| L3012 | G1C120J00003 | COIL CHIP 12UH | |
| L3013 | G1C331J00004 | COIL CHIP 330UH | |
| L3014 | G1C180J00003 | COIL CHIP 18UH | |
| L3015 | G1C331J00004 | COIL CHIP 330UH | |
| L3016 | G1C470J00006 | COIL CHIP 47UH | |
| L3017 | G1C331J00004 | COIL CHIP 330UH | |
| L3030 | G1C220K00013 | COIL CHIP 22UH | |
| L3031 | G1C470J00006 | COIL CHIP 47UH | |
| L4001 | G1C221KA0002 | COIL CHIP 220UH | |
| L4002 | G1C101KA0002 | COIL CHIP 100HF | |

## CRYSTAL OSCILLATOR

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| X601 | H0A286500001 | CRYSTAL OSCILLATOR | |
| X3001 | LSSX0070 | CRYSTAL OSCILLATOR | |
| X6001 | H0A143500002 | CRYSTAL OSCILLATOR | |
| X6002 | LSSX0072 | CRYSTAL OSCILLATOR | |

## FPC CONNECTORS

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| FP1 | K1MN28B00053 | CONNECTOR 28P | |
| FP2 | K1MN26A00053 | CONNECTOR 26P | |
| FP6 | K1MN28B00053 | CONNECTOR 28P | |
| FP7 | K1MN14A00072 | CONNECTOR 14P | |
| FP8 | K1MN12A00058 | CONNECTOR 12P | |
| FP9 | K1MN22A00053 | CONNECTOR 22P | |
| FP10 | K1MN26A00053 | CONNECTOR 26P | |
| FP11 | K1MN06A00050 | CONNECTOR 6P | |
| FP12 | K1MN06B00140 | CONNECTOR 6P | |
| FP13 | K1MN16B00122 | CONNECTOR 16P | |

## FUSE& PROTECTOR

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| F1001 | K5H202Z00005 | FUSE CHIP 32V 2A | ⚠ |
| F1002 | K5H152Z00006 | FUSE CHIP 32V 1.5A | ⚠ |

## TRANSFORMER

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| T4001 | EQQ7QE025Q | TRANSFORMER | |

## MISCELLANEOUS

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| 707 | VMTS0035 | CUSHION,RUBBER | |
| 708 | LSMX0171 | INSULATION SHEET,PLASTIC | |
| 712 | LSMF0220 | SHEET,NYLON-RAYON | |

## 13.3.2. MAIN C.B.A.
## (MODEL: D)

COMPARISON CHART OF MODELS & MARKS

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |

### INTEGRATED CIRCUITS

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| IC301 | MN673241 | IC, LOGIC | E.S.D. |
| IC306 | C3EBEG000047 | IC, 4K EEP ROM | E.S.D. |
| IC309 | C0ABCZ000008 | IC, LINEAR | |
| IC501 | C2DBKH000115 | IC, 32BIT MICROCONTROLLER | E.S.D. |
| IC505 | C0DBEFB00001 | IC, LINEAR | |
| IC602 | MN5293-1 | IC, CMOS GATE ARRAYS | E.S.D. |
| IC603 | MN3112SA-E1 | IC, CMOS STANDARD LOGIC | E.S.D. |
| IC605 | AN2109NFHQ | IC, LINEAR | |
| IC701 | C0GBC0000018 | IC, LINEAR | |
| IC701 | C0GBA0000011 | IC, LINEAR | |
| IC701 | LB1837MTEL3 | IC, LINEAR | |
| IC702 | C0GBC0000018 | IC, LINEAR | |
| IC702 | C0GBA0000011 | IC, LINEAR | |
| IC702 | LB1837MTEL3 | IC, LINEAR | |
| IC1001 | C0DBCMC00003 | IC, LINEAR | |
| IC2001 | AN3897FH-V | IC, LINEAR | |
| IC2002 | UNA022400L | IC, LINEAR | |
| IC2003 | UNA022400L | IC, LINEAR | |
| IC3001 | AN2401NFH | IC, LINEAR | |
| IC3002 | MN38663S-E1 | IC, LOGIC | E.S.D. |
| IC4001 | AN12998A-V | IC, LINEAR | |
| IC6001 | MN101D06FWG | IC, 8BIT MICROCONTROLLER | E.S.D. |
| IC6002 | C0EBG0000136 | IC, LINEAR | |
| IC6002 | R3111Q391ATR | IC, LINEAR | |
| IC6002 | S80839ANNPT2 | IC, LINEAR | |
| IC6002 | XC61CN3902NR | IC, LINEAR | |
| IC6005 | C1ZBZ0002198 | IC, PERIPHERAL MCU | E.S.D. |
| IC6006 | C0CBACE00012 | IC, PERIPHERAL MCU | E.S.D. |
| IC6007 | C0GBG0000029 | IC, LINEAR | |
| IC6203 | CNB10010RL | TAKEUP REEL SENSOR | |

### TRANSISTORS

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| Q301 | 2SD1819A0L | TRANSISTOR SI NPN CHIP | |
| Q301 | B1ABCF000020 | TRANSISTOR SI NPN CHIP | |
| Q302 | B1ABAD000010 | TRANSISTOR SI NPN CHIP | |
| Q302 | 2SC4215-YTL | TRANSISTOR SI NPN CHIP | |
| Q303 | 2SD1819A0L | TRANSISTOR SI NPN CHIP | |
| Q303 | B1ABCF000020 | TRANSISTOR SI NPN CHIP | |
| Q305 | 2SD1819A0L | TRANSISTOR SI NPN CHIP | |
| Q305 | B1ABCF000020 | TRANSISTOR SI NPN CHIP | |
| Q306 | 2SB1218A0L | TRANSISTOR SI PNP CHIP | |
| Q306 | B1ADCF000063 | TRANSISTOR SI PNP CHIP | |
| Q307 | 2SB1218A0L | TRANSISTOR SI PNP CHIP | |
| Q307 | B1ADCF000063 | TRANSISTOR SI PNP CHIP | |
| Q308 | 2SD132800L | TRANSISTOR SI NPN CHIP | |
| Q308 | 2SD2436 | TRANSISTOR SI NPN CHIP | |
| Q310 | 2SD1819A0L | TRANSISTOR SI NPN CHIP | |
| Q310 | B1ABCF000020 | TRANSISTOR SI NPN CHIP | |
| Q311 | 2SD1819A0L | TRANSISTOR SI NPN CHIP | |
| Q311 | B1ABCF000020 | TRANSISTOR SI NPN CHIP | |
| Q610 | B1ABAD000010 | TRANSISTOR SI NPN CHIP | |
| Q610 | 2SC4215-YTL | TRANSISTOR SI NPN CHIP | |
| Q611 | B1ABAD000010 | TRANSISTOR SI NPN CHIP | |
| Q611 | 2SC4215-YTL | TRANSISTOR SI NPN CHIP | |
| Q617 | UNR521500L | TRANSISTOR SI NPN CHIP | |
| Q617 | B1GBCFJA0006 | TRANSISTOR SI NPN CHIP | |
| Q703 | UNR521100L | TRANSISTOR SI NPN CHIP | |
| Q703 | B1GBCFJJ0007 | TRANSISTOR SI PNP CHIP | |
| Q1001 | UNR511100L | TRANSISTOR SI PNP CHIP | |
| Q1001 | B1GDCFJJ0008 | TRANSISTOR SI PNP CHIP | |
| Q1002 | UNR511300L | TRANSISTOR SI PNP CHIP | |
| Q1002 | B1GDCFNN0007 | TRANSISTOR SI PNP CHIP | |
| Q1003 | UNR511500L | TRANSISTOR SI PNP CHIP | |
| Q1003 | B1GDCFJJ0025 | TRANSISTOR SI PNP CHIP | |
| Q1005 | 2SA201000L | TRANSISTOR SI PNP CHIP | |
| Q1005 | B1ADPB000001 | TRANSISTOR SI PNP CHIP | |
| Q1006 | 2SA204600L | TRANSISTOR SI PNP CHIP | |
| Q1006 | B1ADMD000009 | TRANSISTOR SI PNP CHIP | |
| Q1007 | 2SA204600L | TRANSISTOR SI PNP CHIP | |
| Q1007 | B1ADMD000009 | TRANSISTOR SI PNP CHIP | |
| Q1008 | 2SA204600L | TRANSISTOR SI PNP CHIP | |
| Q1008 | B1ADMD000009 | TRANSISTOR SI PNP CHIP | |
| Q1009 | 2SA204600L | TRANSISTOR SI PNP CHIP | |
| Q1009 | B1ADMD000009 | TRANSISTOR SI PNP CHIP | |
| Q1010 | 2SB1218A0L | TRANSISTOR SI PNP CHIP | |
| Q1010 | B1ADCF000063 | TRANSISTOR SI PNP CHIP | |
| Q1011 | XP0450100L | TRANSISTOR SI NPN CHIP | |
| Q1011 | B1HBCFA00001 | TRANSISTOR COMPLX CMP SI NPN CHIP | |
| Q1011 | B1HBCFA00010 | TRANSISTOR COMPLX CMP SI NPN CHIP | |
| Q1011 | B1HBCFA00011 | TRANSISTOR COMPLX CMP SI NPN CHIP | |
| Q1013 | 2SA204600L | TRANSISTOR SI PNP CHIP | |
| Q1013 | B1ADMD000009 | TRANSISTOR SI PNP CHIP | |
| Q1015 | B1ABCF000098 | TRANSISTOR SI NPN CHIP | |
| Q1015 | B1ABCF000099 | TRANSISTOR SI NPN CHIP | |
| Q1018 | 2SB1218A0L | TRANSISTOR SI PNP CHIP | |
| Q1018 | B1ADCF000063 | TRANSISTOR SI PNP CHIP | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| Q1019 | 2SB1218A0L | TRANSISTOR SI PNP CHIP | |
| Q1019 | B1ADCF000063 | TRANSISTOR SI PNP CHIP | |
| Q1024 | 2SD1819A0L | TRANSISTOR SI NPN CHIP | |
| Q1024 | B1ABCF000020 | TRANSISTOR SI NPN CHIP | |
| Q1101 | B1BDEB000001 | TRANSISTOR SI PNP CHIP | |
| Q1102 | 2SD1819A0L | TRANSISTOR SI NPN CHIP | |
| Q1102 | B1ABCF000020 | TRANSISTOR SI NPN CHIP | |
| Q1103 | 2SB1218A0L | TRANSISTOR SI PNP CHIP | |
| Q1103 | B1ADCF000063 | TRANSISTOR SI PNP CHIP | |
| Q1105 | 2SB1218A0L | TRANSISTOR SI PNP CHIP | |
| Q1105 | B1ADCF000063 | TRANSISTOR SI PNP CHIP | |
| Q3003 | 2SB1218A0L | TRANSISTOR SI PNP CHIP | |
| Q3003 | B1ADCF000063 | TRANSISTOR SI PNP CHIP | |
| Q3004 | B1ABAD000010 | TRANSISTOR SI NPN CHIP | |
| Q3004 | 2SC4215-YTL | TRANSISTOR SI NPN CHIP | |
| Q3005 | 2SD1819A0L | TRANSISTOR SI NPN CHIP | |
| Q3005 | B1ABCF000020 | TRANSISTOR SI NPN CHIP | |
| Q3027 | 2SD1819A0L | TRANSISTOR SI NPN CHIP | |
| Q3027 | B1ABCF000020 | TRANSISTOR SI NPN CHIP | |
| Q4001 | XP0460100L | TRANSISTOR SI NPN CHIP | |
| Q4001 | B1HFCFA00003 | TRANSISTOR COMPLX CMP SI NPN CHIP | |
| Q4001 | B1HFCFA00009 | TRANSISTOR COMPLX CMP SI NPN CHIP | |
| Q4001 | HN1B04FU-GTR | TRANSISTOR COMPLX CMP SI NPN CHIP | |
| Q4002 | 2SD1819A0L | TRANSISTOR SI NPN CHIP | |
| Q4002 | B1ABCF000020 | TRANSISTOR SI NPN CHIP | |
| Q4003 | 2SD1819A0L | TRANSISTOR SI NPN CHIP | |
| Q4003 | B1ABCF000020 | TRANSISTOR SI NPN CHIP | |
| Q4005 | 2SD1819A0L | TRANSISTOR SI NPN CHIP | |
| Q4005 | B1ABCF000020 | TRANSISTOR SI NPN CHIP | |
| Q4006 | 2SD06020RL | TRANSISTOR SI NPN CHIP | |
| Q4006 | 2SD0602ARL | TRANSISTOR SI NPN CHIP | |
| Q4006 | 2SD2432-R | TRANSISTOR SI NPN CHIP | |
| Q4007 | 2SB09700RL | TRANSISTOR SI PNP CHIP | |
| Q4007 | 2SB1585 | TRANSISTOR SI PNP CHIP | |
| Q4008 | 2SD1819A0L | TRANSISTOR SI NPN CHIP | |
| Q4008 | B1ABCF000020 | TRANSISTOR SI NPN CHIP | |
| Q4009 | 2SD1819A0L | TRANSISTOR SI NPN CHIP | |
| Q4009 | B1ABCF000020 | TRANSISTOR SI NPN CHIP | |
| Q6004 | 2SB1218A0L | TRANSISTOR SI PNP CHIP | |
| Q6004 | B1ADCF000063 | TRANSISTOR SI PNP CHIP | |
| Q6008 | UNR521700L | TRANSISTOR SI NPN CHIP | |
| Q6008 | B1GBCFLA0006 | TRANSISTOR SI NPN CHIP | |
| Q6010 | UNR521200L | TRANSISTOR SI NPN CHIP | |
| Q6010 | B1GBCFLL0012 | TRANSISTOR SI NPN CHIP | |
| Q6012 | 2SD1819A0L | TRANSISTOR SI NPN CHIP | |
| Q6012 | B1ABCF000020 | TRANSISTOR SI NPN CHIP | |
| Q6013 | 2SD0601A0L | TRANSISTOR SI NPN CHIP | |
| Q6013 | B1ABCF000011 | TRANSISTOR SI NPN CHIP | |
| Q6021 | 2SB1218A0L | TRANSISTOR SI PNP CHIP | |
| Q6021 | B1ADCF000063 | TRANSISTOR SI PNP CHIP | |

## DIODES

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| D601 | MA2J11100L | DIODE SI CHIP | |
| D701 | MA2J11100L | DIODE SI CHIP | |
| D1004 | B0JCMD000014 | DIODE SI CHIP | |
| D1005 | MA2J11100L | DIODE SI CHIP | |
| D1005 | B0ACCK000005 | DIODE SI CHIP | |
| D1007 | MA2J11100L | DIODE SI CHIP | |
| D1007 | B0ACCK000005 | DIODE SI CHIP | |
| D1008 | MA2J11100L | DIODE SI CHIP | |
| D1012 | MAZ80680HL | DIODE ZENER CHIP 6.8V | |
| D1013 | B0JCMD000014 | DIODE SI CHIP | |
| D1014 | B0JCMD000014 | DIODE SI CHIP | |
| D1015 | B0JCMD000014 | DIODE SI CHIP | |
| D1016 | MA2J11100L | DIODE SI CHIP | |
| D1016 | B0ACCK000005 | DIODE SI CHIP | |
| D1017 | MA2J11100L | DIODE SI CHIP | |
| D1017 | B0ACCK000005 | DIODE SI CHIP | |
| D1101 | RD12S-T1B | DIODE ZENER CHIP 12V | |
| D1102 | MA2J11100L | DIODE SI CHIP | |
| D1103 | MAZ3120D0L | DIODE ZENER CHIP 12V | |
| D3006 | MA2S35700K8 | DIODE SI CHIP | |
| D3006 | B0CAAC000005 | DIODE SI CHIP | |
| D3006 | MA2S357-TX | DIODE SI CHIP | |
| D6001 | MA3J142E0L | DIODE SI CHIP | |
| D6001 | B0ADCJ000012 | DIODE SI CHIP | |
| D6019 | MA2J11100L | DIODE SI CHIP | |

## RESISTORS

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| R301 | ERJ3GEYJ122V | MGF CHIP 1/16W 1.2K | |
| R302 | D0HB561ZA002 | MGF CHIP 1/16W 560 | |
| R303 | ERJ3EKF1001V | MGF CHIP 1/16W 1K | |
| R304 | ERJ3EKF2201V | MGF CHIP 1/16W 2.2K | |
| R305 | ERJ3EKF2201V | MGF CHIP 1/16W 2.2K | |
| R306 | ERJ3GEYJ332V | MGF CHIP 1/16W 3.3K | |
| R307 | ERJ3EKF1002V | MGF CHIP 1/16W 10K | |
| R308 | ERJ3EKF3900V | MGF CHIP 1/16W 390 | |
| R309 | ERJ3EKF1001V | MGF CHIP 1/16W 1K | |
| R310 | ERJ3EKF1001V | MGF CHIP 1/16W 1K | |
| R312 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 | |
| R314 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R315 | D0HB221ZA002 | MGF CHIP 1/16W 220 | |
| R316 | ERJ3GEYJ221V | MGF CHIP 1/16W 220 | |
| R317 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R318 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R319 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R320 | ERJ3GEYJ561V | MGF CHIP 1/16W 560 | |
| R321 | D0HB242ZA002 | MGF CHIP 1/16W 2.4K | |
| R322 | ERJ3EKF1501V | MGF CHIP 1/16W 1.4K | |
| R323 | ERJ3GEYJ183V | MGF CHIP 1/16W 18K | |
| R333 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 | |
| R336 | ERJ3GEYJ473V | MGF CHIP 1/16W 47K | |
| R340 | ERJ3GEYJ332V | MGF CHIP 1/16W 3.3K | |
| R342 | ERJ3GEYJ222V | MGF CHIP 1/16W 2.2K | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| R343 | ERJ3GEYJ221V | MGF CHIP 1/16W 220 | |
| R344 | ERJ3GEYJ152V | MGF CHIP 1/16W 1.5K | |
| R345 | ERJ3GEYJ104V | MGF CHIP 1/16W 100K | |
| R346 | ERJ3GEYJ562V | MGF CHIP 1/16W 5.6K | |
| R347 | ERJ3GEYJ272V | MGF CHIP 1/16W 2.7K | |
| R348 | ERJ3GEYJ333V | MGF CHIP 1/16W 33K | |
| R349 | ERJ3GEYJ304V | MGF CHIP 1/16W 300K | |
| R350 | ERJ3GEYJ822V | MGF CHIP 1/16W 8.2K | |
| R351 | ERJ3GEYJ473V | MGF CHIP 1/16W 47K | |
| R352 | ERJ3GEYJ273V | MGF CHIP 1/16W 27K | |
| R353 | ERJ3GEYJ562V | MGF CHIP 1/16W 5.6K | |
| R355 | ERJ3GEYJ304V | MGF CHIP 1/16W 300K | |
| R356 | ERJ3GEYJ334V | MGF CHIP 1/16W 330K | |
| R357 | ERJ3GEYJ474V | MGF CHIP 1/16W 470K | |
| R358 | ERJ3GEYJ123V | MGF CHIP 1/16W 12K | |
| R359 | ERJ3GEYJ123V | MGF CHIP 1/16W 12K | |
| R360 | ERJ3GEYJ331V | MGF CHIP 1/16W 330 | |
| R361 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R362 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R363 | ERJ3GEYJ392V | MGF CHIP 1/16W 3.9K | |
| R364 | ERJ3GEYJ473V | MGF CHIP 1/16W 47K | |
| R365 | ERJ3GEYK395V | MGF CHIP 1/16W 3.9M | |
| R366 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R367 | ERJ3GEYJ273V | MGF CHIP 1/16W 27K | |
| R368 | ERJ3GEYJ273V | MGF CHIP 1/16W 27K | |
| R369 | ERJ3GEYJ393V | MGF CHIP 1/16W 39K | |
| R370 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R372 | ERJ3GEYJ393V | MGF CHIP 1/16W 39K | |
| R373 | ERJ3GEYJ303V | MGF CHIP 1/16W 30K | |
| R374 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R376 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R379 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R380 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 | |
| R381 | ERJ3GEYJ272V | MGF CHIP 1/16W 2.7K | |
| R382 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R383 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 | |
| R384 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R385 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R387 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R388 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R391 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 | |
| R393 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R394 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 | |
| R402 | ERJ3EKF1802V | MGF CHIP 1/16W 18K | |
| R427 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R430 | ERJ3GEYJ104V | MGF CHIP 1/16W 100K | |
| R436 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R450 | ERJ3GEYJ391V | MGF CHIP 1/16W 390 | |
| R451 | ERJ3GEYJ221V | MGF CHIP 1/16W 220 | |
| R452 | D0HB272ZA002 | MGF CHIP 1/16W 2.7K | |
| R453 | D0HB104ZA002 | MGF CHIP 1/16W 100K | |
| R454 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R456 | ERJ3GEYJ4R7V | MGF CHIP 1/16W 4.7 | |
| R505 | ERJ3GEYJ473V | MGF CHIP 1/16W 47K | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| R530 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R531 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R532 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R533 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R569 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R603 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 | |
| R605 | ERJ3GEYJ331V | MGF CHIP 1/16W 330 | |
| R608 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R609 | ERJ3GEYJ821V | MGF CHIP 1/16W 820 | |
| R612 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R613 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R614 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R616 | ERJ3GEYJ105V | MGF CHIP 1/16W 1M | |
| R617 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 | |
| R618 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 | |
| R619 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 | |
| R620 | ERJ3GEYJ182V | MGF CHIP 1/16W 1.8K | |
| R622 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R623 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R624 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R625 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R626 | ERJ3GEYJ183V | MGF CHIP 1/16W 18K | |
| R639 | ERJ3GEYJ105V | MGF CHIP 1/16W 1M | |
| R641 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 | |
| R643 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 | |
| R644 | ERJ3GEYJ330V | MGF CHIP 1/16W 33 | |
| R645 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 | |
| R646 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R651 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R652 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R653 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R659 | ERJ3GEYJ562V | MGF CHIP 1/16W 5.6K | |
| R662 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R680 | ERJ3GEYJ331V | MGF CHIP 1/16W 330 | |
| R683 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R701 | ERJ3GEYJ100V | MGF CHIP 1/16W 10 | |
| R702 | ERJ3GEYJ100V | MGF CHIP 1/16W 10 | |
| R703 | ERJ3GEYJ100V | MGF CHIP 1/16W 10 | |
| R704 | ERJ3GEYJ100V | MGF CHIP 1/16W 10 | |
| R705 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R706 | ERJ3GEYJ393V | MGF CHIP 1/16W 39K | |
| R707 | ERJ8GEYJ101V | MGF CHIP 1/8W 100 | |
| R708 | ERJ3GEYJ393V | MGF CHIP 1/16W 39K | |
| R709 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R712 | ERJ3GEYJ332V | MGF CHIP 1/16W 3.3K | |
| R713 | ERJ3GEYJ332V | MGF CHIP 1/16W 3.3K | |
| R714 | ERJ3GEYJ332V | MGF CHIP 1/16W 3.3K | |
| R715 | ERJ3GEYJ332V | MGF CHIP 1/16W 3.3K | |
| R718 | ERJ3GEYJ562V | MGF CHIP 1/16W 5.6K | |
| R719 | ERJ3GEYJ183V | MGF CHIP 1/16W 18K | |
| R720 | ERJ3GEYJ114V | MGF CHIP 1/16W 110K | |
| R721 | ERJ3GEYJ183V | MGF CHIP 1/16W 18K | |
| R722 | ERJ3GEYJ114V | MGF CHIP 1/16W 110K | |
| R723 | ERJ3GEYJ363V | MGF CHIP 1/16W 36K | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| R724 | ERJ3GEYJ363V | MGF CHIP 1/16W 36K | |
| R726 | ERJ3GEYJ562V | MGF CHIP 1/16W 5.6K | |
| R730 | ERJ3GEYJ562V | MGF CHIP 1/16W 5.6K | |
| R732 | ERJ3GEYJ562V | MGF CHIP 1/16W 5.6K | |
| R735 | ERJ3GEYJ363V | MGF CHIP 1/16W 36K | |
| R736 | ERJ3GEYJ363V | MGF CHIP 1/16W 36K | |
| R737 | ERJ3GEYJ114V | MGF CHIP 1/16W 110K | |
| R738 | ERJ3GEYJ183V | MGF CHIP 1/16W 18K | |
| R739 | ERJ3GEYJ114V | MGF CHIP 1/16W 110K | |
| R740 | ERJ3GEYJ183V | MGF CHIP 1/16W 18K | |
| R744 | ERJ8GEYJ3R9V | MGF CHIP 1/8W 3.9 | |
| R745 | ERJ8GEYJ3R9V | MGF CHIP 1/8W 3.9 | |
| R746 | ERJ3GEYJ332V | MGF CHIP 1/16W 3.3K | |
| R747 | ERJ3GEYJ332V | MGF CHIP 1/16W 3.3K | |
| R748 | ERJ3GEYJ332V | MGF CHIP 1/16W 3.3K | |
| R749 | ERJ3GEYJ332V | MGF CHIP 1/16W 3.3K | |
| R750 | ERJ3GEYJ105V | MGF CHIP 1/16W 1M | |
| R751 | ERJ3GEYJ105V | MGF CHIP 1/16W 1M | |
| R752 | ERJ3EKF1002V | MGF CHIP 1/16W 10K | |
| R753 | ERJ3GEYJ332V | MGF CHIP 1/16W 3.3K | |
| R1003 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R1004 | ERJ3GEYJ682V | MGF CHIP 1/16W 6.8K | |
| R1006 | ERJ3GEYJ224V | MGF CHIP 1/16W 220K | |
| R1007 | ERJ3GEYJ224V | MGF CHIP 1/16W 220K | |
| R1009 | ERJ3GEYJ223V | MGF CHIP 1/16W 22K | |
| R1011 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R1012 | D0HB393ZA002 | MGF CHIP 1/16W 39K | |
| R1013 | ERJ3GEYJ222V | MGF CHIP 1/16W 2.2K | |
| R1016 | D0HB203ZA002 | MGF CHIP 1/16W 20K | |
| R1017 | D0HB473ZA002 | MGF CHIP 1/16W 47K | |
| R1019 | ERJ3GEYJ224V | MGF CHIP 1/16W 220K | |
| R1020 | ERJ3GEYJ471V | MGF CHIP 1/16W 470 | |
| R1021 | ERJ3GEYJ471V | MGF CHIP 1/16W 470 | |
| R1022 | ERJ3GEYJ562V | MGF CHIP 1/16W 5.6K | |
| R1023 | ERJ3GEYJ223V | MGF CHIP 1/16W 22K | |
| R1026 | ERJ3GEYJ682V | MGF CHIP 1/16W 6.8K | |
| R1027 | ERJ3GEYJ682V | MGF CHIP 1/16W 6.8K | |
| R1028 | ERJ3GEYJ471V | MGF CHIP 1/16W 470 | |
| R1029 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R1030 | ERJ3GEYJ682V | MGF CHIP 1/16W 6.8K | |
| R1031 | D0HB203ZA002 | MGF CHIP 1/16W 20K | |
| R1032 | D0HB151ZA002 | MGF CHIP 1/16W 150 | |
| R1033 | D0HB103ZA002 | MGF CHIP 1/16W 10K | |
| R1034 | D0HB362ZA002 | MGF CHIP 1/16W 3.6K | |
| R1035 | D0HB390ZA003 | MGF CHIP 1/16W 39 | |
| R1036 | D0HB272ZA002 | MGF CHIP 1/16W 2.7K | |
| R1037 | D0HB273ZA002 | MGF CHIP 1/16W 27K | |
| R1038 | D0HB390ZA003 | MGF CHIP 1/16W 39 | |
| R1039 | D0HB302ZA002 | MGF CHIP 1/16W 3K | |
| R1040 | D0HB622ZA002 | MGF CHIP 1/16W 6.2K | |
| R1041 | D0HB390ZA003 | MGF CHIP 1/16W 39 | |
| R1043 | D0HB302ZA002 | MGF CHIP 1/16W 3K | |
| R1044 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R1045 | ERJ6GEYJ271V | MGF CHIP 1/10W 270 | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| R1046 | ERJ3GEYJ222V | MGF CHIP 1/16W 2.2K | |
| R1060 | ERJ3GEYJ821V | MGF CHIP 1/16W 820 | |
| R1062 | ERJ3GEYJ223V | MGF CHIP 1/16W 22K | |
| R1064 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R1065 | ERJ3GEYJ821V | MGF CHIP 1/16W 820 | |
| R1067 | D0HB392ZA002 | MGF CHIP 1/16W 3.9K | |
| R1068 | D0HB182ZA002 | MGF CHIP 1/16W 1.8K | |
| R1069 | D0HB330ZA003 | MGF CHIP 1/16W 33 | |
| R1071 | ERJ3GEYJ473V | MGF CHIP 1/16W 47K | |
| R1072 | ERJ3GEYJ473V | MGF CHIP 1/16W 47K | |
| R1073 | ERJ3GEYJ473V | MGF CHIP 1/16W 47K | |
| R1074 | ERJ3GEYJ473V | MGF CHIP 1/16W 47K | |
| R1084 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R1085 | ERJ3GEYJ392V | MGF CHIP 1/16W 3.9K | |
| R1086 | ERJ3GEYJ223V | MGF CHIP 1/16W 22K | |
| R1087 | ERJ3GEYJ473V | MGF CHIP 1/16W 47K | |
| R1101 | ERJ8GEYJR56V | MGF CHIP 1/8W 0.56 | |
| R1102 | ERJ8GEYJR56V | MGF CHIP 1/8W 0.56 | |
| R1103 | ERJ3GEYJ223V | MGF CHIP 1/16W 22K | |
| R1104 | ERJ3GEYJ560V | MGF CHIP 1/16W 56 | |
| R1105 | ERJ3GEYJ222V | MGF CHIP 1/16W 2.2K | |
| R1106 | ERJ3GEYJ561V | MGF CHIP 1/16W 560 | |
| R1107 | ERJ3GEYJ562V | MGF CHIP 1/16W 5.6K | |
| R1108 | ERJ3GEYJ473V | MGF CHIP 1/16W 47K | |
| R1109 | ERJ3GEYJ473V | MGF CHIP 1/16W 47K | |
| R1110 | ERJ3GEYJ223V | MGF CHIP 1/16W 22K | |
| R1111 | ERJ3GEYJ223V | MGF CHIP 1/16W 22K | |
| R1601 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R1602 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R1603 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R1604 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R1605 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R1606 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R1610 | ERJ3GEYJ273V | MGF CHIP 1/16W 27K | |
| R1611 | ERJ3GEYJ683V | MGF CHIP 1/16W 68K | |
| R1612 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R1613 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R2001 | ERJ3GEYJ152V | MGF CHIP 1/16W 1.5K | |
| R2003 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R2004 | ERJ3GEYJ332V | MGF CHIP 1/16W 3.3K | |
| R2008 | ERJ8GEYJR33V | MGF CHIP 1/8W 0.33 | |
| R2010 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R2011 | ERJ3GEYJ223V | MGF CHIP 1/16W 22K | |
| R2012 | ERJ3GEYJ184V | MGF CHIP 1/16W 180K | |
| R2013 | ERJ3GEYJ332V | MGF CHIP 1/16W 3.3K | |
| R2014 | ERJ3GEYJ684V | MGF CHIP 1/16W 680K | |
| R2015 | ERJ3GEYJ682V | MGF CHIP 1/16W 6.8K | |
| R2016 | ERJ3GEYJ684V | MGF CHIP 1/16W 680K | |
| R2021 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R2022 | ERJ3GEYJ221V | MGF CHIP 1/16W 220 | |
| R2023 | ERJ8GEYJR33V | MGF CHIP 1/8W 0.33 | |
| R2025 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R2026 | ERJ3GEYJ820V | MGF CHIP 1/16W 82 | |
| R2027 | ERJ3GEYJ471V | MGF CHIP 1/16W 470 | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|----------|----------|------------------------|---------|
| R2028 | ERJ3GEYJ391V | MGF CHIP 1/16W 390 | |
| R2029 | ERJ3GEYJ391V | MGF CHIP 1/16W 390 | |
| R2030 | ERJ3GEYJ471V | MGF CHIP 1/16W 470 | |
| R2031 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R2032 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R3002 | ERJ3GEYJ154V | MGF CHIP 1/16W 150K | |
| R3003 | ERJ3GEYJ152V | MGF CHIP 1/16W 1.5K | |
| R3004 | ERJ3GEYJ270V | MGF CHIP 1/16W 27 | |
| R3005 | ERJ3GEYJ221V | MGF CHIP 1/16W 220 | |
| R3006 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R3008 | ERJ3GEYJ122V | MGF CHIP 1/16W 1.2K | |
| R3009 | ERJ3GEYJ392V | MGF CHIP 1/16W 3.9K | |
| R3010 | ERJ3GEYJ122V | MGF CHIP 1/16W 1.2K | |
| R3011 | ERJ3GEYJ271V | MGF CHIP 1/16W 270 | |
| R3015 | ERJ3GEYJ393V | MGF CHIP 1/16W 39K | |
| R3016 | ERJ3GEYJ821V | MGF CHIP 1/16W 820 | |
| R3017 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R3018 | ERJ3GEYJ471V | MGF CHIP 1/16W 470 | |
| R3022 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R3023 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R3024 | ERJ6GEYJ560V | MGF CHIP 1/10W 56 | |
| R3025 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R3026 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R3031 | ERJ3GEYJ821V | MGF CHIP 1/16W 820 | |
| R3032 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R3033 | ERJ3GEYJ182V | MGF CHIP 1/16W 1.8K | |
| R3034 | ERJ3GEYJ821V | MGF CHIP 1/16W 820 | |
| R3035 | ERJ3GEYJ182V | MGF CHIP 1/16W 1.8K | |
| R3036 | ERJ3GEYJ471V | MGF CHIP 1/16W 470 | |
| R3037 | ERJ3GEYJ332V | MGF CHIP 1/16W 3.3K | |
| R3038 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R3039 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R3040 | ERJ3GEYJ222V | MGF CHIP 1/16W 2.2K | |
| R3041 | ERJ3GEYJ681V | MGF CHIP 1/16W 680 | |
| R3044 | ERJ3GEYJ681V | MGF CHIP 1/16W 680 | |
| R3045 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R3048 | ERJ3GEYJ681V | MGF CHIP 1/16W 680 | |
| R3050 | ERJ3GEYJ821V | MGF CHIP 1/16W 820 | |
| R3129 | ERJ3GEYJ391V | MGF CHIP 1/16W 390 | |
| R3130 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R3140 | ERJ3GEYJ122V | MGF CHIP 1/16W 1.2K | |
| R3150 | ERJ3GEYJ152V | MGF CHIP 1/16W 1.5K | |
| R3151 | ERJ3GEYJ183V | MGF CHIP 1/16W 18K | |
| R3152 | ERJ3GEYJ821V | MGF CHIP 1/16W 820 | |
| R3153 | ERJ3GEYJ272V | MGF CHIP 1/16W 2.7K | |
| R3154 | ERJ3GEYJ332V | MGF CHIP 1/16W 3.3K | |
| R3180 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R3181 | ERJ3GEYJ473V | MGF CHIP 1/16W 47K | |
| R3182 | ERJ3GEYJ473V | MGF CHIP 1/16W 47K | |
| R3183 | ERJ3GEYJ152V | MGF CHIP 1/16W 1.5K | |
| R3184 | ERJ3GEYJ821V | MGF CHIP 1/16W 820 | |
| R3185 | ERJ3GEYJ182V | MGF CHIP 1/16W 1.8K | |
| R3186 | ERJ3GEYJ222V | MGF CHIP 1/16W 2.2K | |
| R3215 | ERJ3GEYJ104V | MGF CHIP 1/16W 100K | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| R4002 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R4003 | ERJ3GEYJ222V | MGF CHIP 1/16W 2.2K | |
| R4006 | ERJ3GEYJ183V | MGF CHIP 1/16W 18K | |
| R4007 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R4009 | ERJ3GEYJ2R2V | MGF CHIP 1/16W 2.2 | |
| R4010 | ERJ3GEYJ2R2V | MGF CHIP 1/16W 2.2 | |
| R4011 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R4012 | ERJ3GEYJ104V | MGF CHIP 1/16W 100K | |
| R4013 | ERJ3GEYJ104V | MGF CHIP 1/16W 100K | |
| R4014 | ERJ3GEYJ433V | MGF CHIP 1/16W 43K | |
| R4015 | ERJ3GEYJ561V | MGF CHIP 1/16W 560 | |
| R4016 | ERJ3GEYJ561V | MGF CHIP 1/16W 560 | |
| R4017 | ERJ3GEYJ123V | MGF CHIP 1/16W 12K | |
| R4018 | ERJ3GEYJ333V | MGF CHIP 1/16W 33K | |
| R4019 | ERJ3GEYJ223V | MGF CHIP 1/16W 22K | |
| R4020 | ERJ3GEYJ183V | MGF CHIP 1/16W 18K | |
| R4021 | ERJ3GEYJ222V | MGF CHIP 1/16W 2.2K | |
| R4022 | ERJ3GEYJ223V | MGF CHIP 1/16W 22K | |
| R4024 | ERJ3GEYJ332V | MGF CHIP 1/16W 3.3K | |
| R4025 | ERJ3GEYJ332V | MGF CHIP 1/16W 3.3K | |
| R4026 | ERJ3GEYJ333V | MGF CHIP 1/16W 33K | |
| R4027 | ERJ3GEYJ183V | MGF CHIP 1/16W 18K | |
| R4029 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R4030 | ERJ3GEYJ680V | MGF CHIP 1/16W 68 | |
| R4031 | ERJ3GEYJ223V | MGF CHIP 1/16W 22K | |
| R4032 | ERJ3GEYJ222V | MGF CHIP 1/16W 2.2K | |
| R4033 | ERJ3GEYJ222V | MGF CHIP 1/16W 2.2K | |
| R4034 | ERJ3GEYJ223V | MGF CHIP 1/16W 22K | |
| R4035 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R4037 | ERJ3GEYJ473V | MGF CHIP 1/16W 47K | |
| R4040 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 | |
| R4041 | ERJ3GEYJ222V | MGF CHIP 1/16W 2.2K | |
| R4042 | ERJ3GEYJ104V | MGF CHIP 1/16W 100K | |
| R4043 | ERJ3GEYJ822V | MGF CHIP 1/16W 8.2K | |
| R4044 | ERJ3GEYJ562V | MGF CHIP 1/16W 5.6K | |
| R4045 | ERJ3GEYJ331V | MGF CHIP 1/16W 330 | |
| R4046 | ERJ3GEYJ334V | MGF CHIP 1/16W 330K | |
| R4050 | ERJ3GEYJ393V | MGF CHIP 1/16W 39K | |
| R4051 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R4052 | ERJ3GEYJ223V | MGF CHIP 1/16W 22K | |
| R4053 | ERJ3GEYJ823V | MGF CHIP 1/16W 82K | |
| R4054 | ERJ3GEYJ433V | MGF CHIP 1/16W 43K | |
| R4055 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 | |
| R4056 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R4057 | ERJ3GEYJ100V | MGF CHIP 1/16W 10 | |
| R4058 | ERJ3GEYJ223V | MGF CHIP 1/16W 22K | |
| R4059 | ERJ3GEYJ473V | MGF CHIP 1/16W 47K | |
| R6004 | ERJ3GEYJ332V | MGF CHIP 1/16W 3.3K | |
| R6006 | ERJ3GEYJ223V | MGF CHIP 1/16W 22K | |
| R6009 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R6010 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R6011 | ERJ3GEYJ562V | MGF CHIP 1/16W 5.6K | |
| R6015 | ERJ3GEYJ273V | MGF CHIP 1/16W 27K | |
| R6016 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| R6017 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R6018 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R6019 | ERJ3GEYJ474V | MGF CHIP 1/16W 470K | |
| R6020 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R6021 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R6024 | ERJ3GEYJ104V | MGF CHIP 1/16W 100K | |
| R6025 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R6026 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R6027 | ERJ3GEYJ272V | MGF CHIP 1/16W 2.7K | |
| R6028 | ERJ3GEYJ332V | MGF CHIP 1/16W 3.3K | |
| R6029 | ERJ3GEYJ332V | MGF CHIP 1/16W 3.3K | |
| R6030 | ERJ3GEYJ272V | MGF CHIP 1/16W 2.7K | |
| R6032 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R6034 | ERJ3GEYJ152V | MGF CHIP 1/16W 1.5K | |
| R6035 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R6036 | ERJ3GEYJ563V | MGF CHIP 1/16W 56K | |
| R6037 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R6038 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R6039 | ERJ3GEYJ223V | MGF CHIP 1/16W 22K | |
| R6040 | ERJ3GEYJ561V | MGF CHIP 1/16W 560 | |
| R6041 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R6042 | ERJ3GEYJ124V | MGF CHIP 1/16W 120K | |
| R6046 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R6047 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R6048 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R6049 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R6050 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R6051 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R6052 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R6054 | ERJ3GEYJ223V | MGF CHIP 1/16W 22K | |
| R6056 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R6058 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R6059 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R6060 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R6062 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R6064 | ERJ3GEYJ563V | MGF CHIP 1/16W 56K | |
| R6066 | ERJ3GEYJ682V | MGF CHIP 1/16W 6.8K | |
| R6068 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R6070 | ERJ3GEYJ473V | MGF CHIP 1/16W 47K | |
| R6072 | ERJ3GEYJ392V | MGF CHIP 1/16W 3.9K | |
| R6073 | ERJ3GEYJ223V | MGF CHIP 1/16W 22K | |
| R6074 | ERJ3GEYJ223V | MGF CHIP 1/16W 22K | |
| R6081 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R6082 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R6084 | ERJ3GEYJ561V | MGF CHIP 1/16W 560 | |
| R6085 | ERJ3GEYJ561V | MGF CHIP 1/16W 560 | |
| R6086 | ERJ3GEYJ561V | MGF CHIP 1/16W 560 | |
| R6087 | ERJ3GEYJ561V | MGF CHIP 1/16W 560 | |
| R6088 | ERJ3GEYJ561V | MGF CHIP 1/16W 560 | |
| R6089 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R6090 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R6091 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R6092 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R6093 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| R6094 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R6095 | ERJ3GEYJ563V | MGF CHIP 1/16W 56K | |
| R6096 | ERJ3GEYJ104V | MGF CHIP 1/16W 100K | |
| R6097 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R6098 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R6099 | ERJ3GEYJ473V | MGF CHIP 1/16W 47K | |
| R6102 | D0HB183ZA002 | MGF CHIP 1/16W 18K | |
| R6103 | ERJ3GEYJ272V | MGF CHIP 1/16W 2.7K | |
| R6104 | D0HB103ZA002 | MGF CHIP 1/16W 10K | |
| R6108 | ERJ3GEYJ224V | MGF CHIP 1/16W 220K | |
| R6110 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R6111 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R6112 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R6113 | ERJ3GEYJ272V | MGF CHIP 1/16W 2.7K | |
| R6114 | ERJ3GEYJ154V | MGF CHIP 1/16W 150K | |
| R6115 | ERJ3GEYJ393V | MGF CHIP 1/16W 39K | |
| R6116 | ERJ3GEYJ393V | MGF CHIP 1/16W 39K | |
| R6119 | ERJ8GEYJ101V | MGF CHIP 1/8W 100 | |
| R6139 | ERJ3GEYJ104V | MGF CHIP 1/16W 100K | |
| R6143 | ERJ3GEYJ271V | MGF CHIP 1/16W 270 | |
| R6144 | ERJ3GEYJ271V | MGF CHIP 1/16W 270 | |
| R6145 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R6146 | ERJ3GEYJ224V | MGF CHIP 1/16W 220K | |
| R6147 | ERJ3GEYJ222V | MGF CHIP 1/16W 2.2K | |
| R6148 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R6149 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R6191 | ERJ3GEYJ222V | MGF CHIP 1/16W 2.2K | |
| R6201 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R6202 | ERJ3GEYJ223V | MGF CHIP 1/16W 22K | |
| R6209 | ERJ3GEYJ225V | MGF CHIP 1/16W 2.2M | |
| R6210 | ERJ3GEYJ561V | MGF CHIP 1/16W 560 | |
| R6215 | ERJ3GEYJ132V | MGF CHIP 1/16W 1.3K | |
| R6217 | ERJ3GEYJ392V | MGF CHIP 1/16W 3.9K | |

## CAPACITORS

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| C301 | ECJ1VC1H330J | C CHIP 50V 33PF | |
| C302 | ECJ1VC1H560J | C CHIP 50V 56PF | |
| C305 | ECJ1VC1H470J | C CHIP 50V 47PF | |
| C306 | ECJ2VB1C104K | C CHIP 16V 0.1UF | |
| C307 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C309 | ECST0JY106 | TANTALUM CHIP 6.3V 10UF | |
| C310 | ECJ2YB1A105K | C CHIP 10V 1UF | |
| C311 | ECJ2YB1A105K | C CHIP 10V 1UF | |
| C312 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C314 | ECST0JY106 | TANTALUM CHIP 6.3V 10UF | |
| C316 | ECJ2YB1A105K | C CHIP 10V 1UF | |
| C317 | ECJ2YB1A105K | C CHIP 10V 1UF | |
| C319 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C320 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C321 | ECST0JY106 | TANTALUM CHIP 6.3V 10UF | |
| C323 | ECST0JY106 | TANTALUM CHIP 6.3V 10UF | |
| C326 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C327 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C329 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C330 | ECEV0JA220S | ELECTROLYTIC CHIP 6.3V 22UF | |
| C338 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C339 | ECJ2VF1C105Z | C CHIP 16V 1UF | |
| C340 | ECJ1VB1H103K | C CHIP 50V 0.01UF | |
| C341 | ECJ1VB1H102K | C CHIP 50V 1000PF | |
| C342 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C347 | ECJ1VB1H102K | C CHIP 50V 1000PF | |
| C357 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C401 | ECJ1VB1H103K | C CHIP 50V 0.01UF | |
| C402 | ECJ1VB1H103K | C CHIP 50V 0.01UF | |
| C403 | ECJ1VB1H103K | C CHIP 50V 0.01UF | |
| C450 | ECJ1VB1H103K | C CHIP 50V 0.01UF | |
| C451 | ECJ2YB1A105K | C CHIP 10V 1UF | |
| C501 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C502 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C503 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C504 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C505 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C506 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C507 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C508 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C509 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C510 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C511 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C531 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C604 | ECJ1VC1H150J | C CHIP 50V 15PF | |
| C605 | ECST0JY226R | TANTALUM CHIP 6.3V 22UF | |
| C606 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C607 | ECJ1VC1H150J | C CHIP 50V 15PF | |
| C611 | ECJ1VC1H150J | C CHIP 50V 15PF | |
| C613 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C614 | F1J1C1050011 | C CHIP 16V 1UF | |
| C615 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C616 | ECJ1VB1C104K | C CHIP 16V 0.1UF | |
| C617 | ECJ2VF1E104Z | C CHIP 25V 0.1UF | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| C618 | ECJ1VC1H060C | C CHIP 50V 6PF | |
| C619 | ECJ1VC1H010C | C CHIP 50V 1PF | |
| C623 | ECEV1CA100S | ELECTROLYTIC CHIP 16V 10UF | |
| C633 | ECJ2FB1A225K | C CHIP 10V 2.2UF | |
| C634 | ECJ2FB1A225K | C CHIP 10V 2.2UF | |
| C636 | ECJ1VF1A105Z | C CHIP 10V 1UF | |
| C638 | ECJ1VF1A105Z | C CHIP 10V 1UF | |
| C639 | ECJ1VF1A105Z | C CHIP 10V 1UF | |
| C640 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C642 | ECJ2YB1A105K | C CHIP 10V 1UF | |
| C643 | ECST0JY106 | TANTALUM CHIP 6.3V 10UF | |
| C644 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C645 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C646 | ECST0JY106 | TANTALUM CHIP 6.3V 10UF | |
| C647 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C651 | ECJ1VB1H102K | C CHIP 50V 1000PF | |
| C663 | ECJ1VC1H100D | C CHIP 50V 10PF | |
| C703 | ECJ2YF1A475Z | C CHIP 10V 4.7UF | |
| C704 | ECJ2YF1A475Z | C CHIP 10V 4.7UF | |
| C706 | ECJ2YF1A475Z | C CHIP 10V 4.7UF | |
| C707 | ECJ2YF1A475Z | C CHIP 10V 4.7UF | |
| C708 | ECEV1CA470S | ELECTROLYTIC CHIP 16V 47UF | |
| C709 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C710 | ECUE1H103KBV | C CHIP 50V 0.01UF | |
| C1002 | ECJ1VB1C104K | C CHIP 16V 0.1UF | |
| C1003 | ECJ1VB1C104K | C CHIP 16V 0.1UF | |
| C1005 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C1007 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C1008 | ECJ1VC1H101J | C CHIP 50V 100PF | |
| C1009 | ECJ1VB1A105K | C CHIP 10V 1UF | |
| C1010 | ECJ1VB1C104K | C CHIP 16V 0.1UF | |
| C1011 | ECJ1VB1H472K | C CHIP 50V 4700PF | |
| C1012 | ECJ1VB1H222K | C CHIP 50V 2200PF | |
| C1013 | ECJ1VC1H101J | C CHIP 50V 100PF | |
| C1014 | ECJ1VC1H470J | C CHIP 50V 47PF | |
| C1015 | ECJ1VC1H101J | C CHIP 50V 100PF | |
| C1016 | ECJ1VC1H101J | C CHIP 50V 100PF | |
| C1017 | ECJ1VC1H470J | C CHIP 50V 47PF | |
| C1018 | ECJ1VB1H472K | C CHIP 50V 4700PF | |
| C1019 | ECJ1VB1H472K | C CHIP 50V 4700PF | |
| C1020 | F1J1C1050011 | C CHIP 16V 1UF | |
| C1021 | ECEV1CA470S | ELECTROLYTIC CHIP 16V 47UF | |
| C1022 | F1K1C4750017 | C CHIP 16V 4.7UF | |
| C1023 | VCUSJBJ335KB | C CHIP 6.3V 3.3UF | |
| C1024 | ECST1AY475 | TANTALUM CHIP 16V 4.7UF | |
| C1025 | ECJ1VB1H471K | C CHIP 50V 470PF | |
| C1026 | F1J0J4750004 | C CHIP 6.3V0.47UF | |
| C1028 | ECJ1VB1H102K | C CHIP 50V 1000PF | |
| C1029 | F1J1C1050011 | C CHIP 16V 1UF | |
| C1030 | ECJ2VF1C105Z | C CHIP 16V 1UF | |
| C1031 | ECEV1CA100S | ELECTROLYTIC CHIP 16V 10UF | |
| C1032 | ECJ2VF1C105Z | C CHIP 16V 1UF | |
| C1033 | ECJ1VB1C104K | C CHIP 16V 0.1UF | |
| C1034 | F1J1C1050011 | C CHIP 16V 1UF | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| C1035 | F1J1C1050011 | C CHIP 16V 1UF | |
| C1036 | ECJ1VB1H102K | C CHIP 50V 1000PF | |
| C1037 | F1J0J4750004 | C CHIP 6.3V0.47UF | |
| C1039 | ECJ1VB1H102K | C CHIP 50V 1000PF | |
| C1040 | ECJ2VF1C105Z | C CHIP 16V 1UF | |
| C1041 | ECEV1CA100S | ELECTROLYTIC CHIP 16V 10UF | |
| C1042 | ECEV0JA470S | ELECTROLYTIC CHIP 6.3V 47UF | |
| C1044 | ECST0JY226R | TANTALUM CHIP 6.3V 22UF | |
| C1045 | ECJ1VF1A105Z | C CHIP 10V 1UF | |
| C1046 | ECJ2VF1C105Z | C CHIP 16V 1UF | |
| C1049 | ECJ1VB1H102K | C CHIP 50V 1000PF | |
| C1051 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C1053 | ECJ1VB1C104K | C CHIP 16V 0.1UF | |
| C1055 | ECJ2VF1C105Z | C CHIP 16V 1UF | |
| C1056 | F1J1C1050011 | C CHIP 16V 1UF | |
| C1057 | F1J1C1050011 | C CHIP 16V 1UF | |
| C1059 | ECJ2VF1C105Z | C CHIP 16V 1UF | |
| C1060 | ECJ1VF1A105Z | C CHIP 10V 1UF | |
| C1061 | ECJ1VC1H470J | C CHIP 50V 47PF | |
| C1062 | ECJ1VC1H470J | C CHIP 50V 47PF | |
| C1063 | ECJ1VC1H101J | C CHIP 50V 100PF | |
| C1101 | ECJ2YB0J225K | C CHIP 6.3V 2.2UF | |
| C2001 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C2002 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C2003 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C2007 | ECEV0JA220S | ELECTROLYTIC CHIP 6.3V 22UF | |
| C2008 | ECJ2VB1E333K | C CHIP 25V 0.033UF | |
| C2010 | ECJ1VB1C683K | C CHIP 16V 0.068UF | |
| C2011 | ECJ2YB1C334K | C CHIP 16V 0.33UF | |
| C2012 | ECJ1VB1C473K | C CHIP 16V 0.047UF | |
| C2013 | ECJ1VB1C473K | C CHIP 16V 0.047UF | |
| C2015 | ECJ1VB1H152K | C CHIP 50V 1500PF | |
| C2016 | ECJ1VB1H331K | C CHIP 50V 330PF | |
| C2017 | ECJ2YB1A105K | C CHIP 10V 1UF | |
| C2021 | ECJ1VF1H473Z | C CHIP 50V 0.047UF | |
| C2022 | ECJ2VF1E473Z | C CHIP 25V 0.047UF | |
| C2023 | ECJ1VB1C104K | C CHIP 16V 0.1UF | |
| C2024 | ECJ2YB1A105K | C CHIP 10V 1UF | |
| C2025 | ECJ1VB1E103K | C CHIP 25V 0.01UF | |
| C2030 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C2031 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C2032 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C2040 | ECEV1CA100S | ELECTROLYTIC CHIP 16V 10UF | |
| C2045 | ECJ1VB1E103K | C CHIP 25V 0.01UF | |
| C3001 | VCUSJBJ335KB | C CHIP 6.3V 3.3UF | |
| C3002 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C3003 | ECST0JY226R | TANTALUM CHIP 6.3V 22UF | |
| C3005 | ECJ1VC1H220J | C CHIP 50V 22PF | |
| C3006 | ECJ1VB1H332K | C CHIP 50V 3300PF | |
| C3007 | ECJ2VF1H104Z | C CHIP 50V 0.1UF | |
| C3008 | ECJ1VB1H103K | C CHIP 50V 0.01UF | |
| C3009 | ECJ2VF1H104Z | C CHIP 50V 0.1UF | |
| C3010 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C3011 | ECJ1VC1H221J | C CHIP 50V 220PF | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| C3012 | ECJ1VB1H821K | C CHIP 50V 820PF | |
| C3013 | ECJ1VC1H560J | C CHIP 50V 56PF | |
| C3014 | ECJ1VC1H331J | C CHIP 50V 330PF | |
| C3015 | ECJ1VC1H561J | C CHIP 50V 560PF | |
| C3017 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C3018 | ECJ1VB1C104K | C CHIP 16V 0.1UF | |
| C3019 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C3021 | ECST0JY226R | TANTALUM CHIP 6.3V 22UF | |
| C3022 | ECJ2YB1A105K | C CHIP 10V 1UF | |
| C3023 | ECJ1VB1C473K | C CHIP 16V 0.047UF | |
| C3024 | ECJ2VF1C105Z | C CHIP 16V 1UF | |
| C3025 | ECJ1VB1H103K | C CHIP 50V 0.01UF | |
| C3028 | ECJ1VB1H103K | C CHIP 50V 0.01UF | |
| C3029 | ECJ1VB1H103K | C CHIP 50V 0.01UF | |
| C3030 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C3031 | ECJ1VB1A224K | C CHIP 10V 0.22UF | |
| C3032 | ECJ1VB1H332K | C CHIP 50V 3300PF | |
| C3033 | ECJ2YB0J225K | C CHIP 6.3V 2.2UF | |
| C3034 | ECJ2VF1C105Z | C CHIP 16V 1UF | |
| C3036 | F1K1C4750017 | C CHIP 16V 4.7UF | |
| C3038 | ECJ1VC1H560J | C CHIP 50V 56PF | |
| C3039 | ECJ1VC1H180J | C CHIP 50V 18PF | |
| C3040 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C3041 | ECJ1VB1C104K | C CHIP 16V 0.1UF | |
| C3042 | ECEV0JA220S | ELECTROLYTIC CHIP 6.3V 22UF | |
| C3043 | ECST0JY226R | TANTALUM CHIP 6.3V 22UF | |
| C3045 | ECEV1HA3R3S | ELECTROLYTIC CHIP 50V 3.3UF | |
| C3046 | ECEV0GA221S | ELECTROLYTIC CHIP 4V 220UF | |
| C3047 | ECJ2YB1A105K | C CHIP 10V 1UF | |
| C3048 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C3053 | ECJ1VC1H390J | C CHIP 50V 39PF | |
| C3054 | ECJ1VC1H101J | C CHIP 50V 100PF | |
| C3055 | ECJ1VC1H181J | C CHIP 50V 180PF | |
| C3057 | ECJ1VC1H180J | C CHIP 50V 18PF | |
| C3058 | ECJ1VC1H120J | C CHIP 50V 12PF | |
| C3059 | ECJ1VC1H100D | C CHIP 50V 10PF | |
| C3060 | ECJ1VC1H120J | C CHIP 50V 12PF | |
| C3061 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C3068 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C3070 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C3072 | ECJ1VB1H103K | C CHIP 50V 0.01UF | |
| C3073 | ECJ1VB1C104K | C CHIP 16V 0.1UF | |
| C3074 | ECEV0JA220S | ELECTROLYTIC CHIP 6.3V 22UF | |
| C3075 | ECJ1VB1H103K | C CHIP 50V 0.01UF | |
| C3077 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C3078 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C3079 | ECJ1VB1H102K | C CHIP 50V 1000PF | |
| C3080 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C3081 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C3085 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C3098 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C3107 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C3132 | ECJ2VF1C105Z | C CHIP 16V 1UF | |
| C3135 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| C3139 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C3150 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C3152 | ECJ1VB1H681K | C CHIP 50V 680PF | |
| C3153 | ECJ1VB1H681K | C CHIP 50V 680PF | |
| C3157 | ECJ1VC1H470J | C CHIP 50V 47PF | |
| C3158 | ECJ1VC1H080C | C CHIP 50V 8PF | |
| C4002 | F1J1A1050002 | C CHIP 10V 1UF | |
| C4003 | ECJ1VB1H102K | C CHIP 50V 1000PF | |
| C4004 | ECUT2A472JCM | C CHIP 100V 4700PF | |
| C4005 | ECJ2VB1H682K | C CHIP 50V 6800PF | |
| C4006 | ECJ1VB1E223K | C CHIP 25V 0.022UF | |
| C4007 | ECJ2YB1A105K | C CHIP 10V 1UF | |
| C4008 | ECST0JY226R | TANTALUM CHIP 6.3V 22UF | |
| C4009 | ECJ2VF1H104Z | C CHIP 50V 0.1UF | |
| C4011 | ECJ1VB1H472K | C CHIP 50V 4700PF | |
| C4012 | ECJ1VB1H103K | C CHIP 50V 0.01UF | |
| C4013 | ECJ1VF1E104Z | C CHIP 25V 0.1UF | |
| C4014 | ECJ1VF1E104Z | C CHIP 25V 0.1UF | |
| C4015 | ECJ2VF1E104Z | C CHIP 25V 0.1UF | |
| C4016 | ECST0JY226R | TANTALUM CHIP 6.3V 22UF | |
| C4017 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C4019 | F1J1A1050002 | C CHIP 10V 1UF | |
| C4021 | ECEV1CA100S | ELECTROLYTIC CHIP 16V 10UF | |
| C4022 | ECJ2YB1C474K | C CHIP 16V 0.47UF | |
| C4023 | ECST0JY475 | TANTALUM CHIP 6.3V 4.7UF | |
| C4026 | ECJ2VB1C104K | C CHIP 16V 0.1UF | |
| C4027 | ECJ1VB1H153K | C CHIP 50V 0.015UF | |
| C4028 | ECST0JY106 | TANTALUM CHIP 6.3V 10UF | |
| C4030 | ECST0JY475 | TANTALUM CHIP 6.3V 4.7UF | |
| C4031 | ECJ1VB1H122K | C CHIP 50V 1200PF | |
| C4032 | F1J1A1050004 | C CHIP 10V 1UF | |
| C4033 | ECJ1VB1H272K | C CHIP 50V 2700PF | |
| C4034 | ECJ1VB1H103K | C CHIP 50V 0.01UF | |
| C4035 | ECJ2VF1C105Z | C CHIP 16V 1UF | |
| C4036 | ECJ2VF1C105Z | C CHIP 16V 1UF | |
| C4039 | ECJ2YB1C474K | C CHIP 16V 0.47UF | |
| C4041 | ECJ1VB1H222K | C CHIP 50V 2200PF | |
| C6001 | ECJ1VC1H330J | C CHIP 50V 33PF | |
| C6002 | ECJ1VB1A224K | C CHIP 10V 0.22UF | |
| C6004 | ECJ2VF1C105Z | C CHIP 16V 1UF | |
| C6006 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C6007 | ECJ1VC1H120J | C CHIP 50V 12PF | |
| C6008 | ECJ1VC1H100D | C CHIP 50V 10PF | |
| C6009 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C6011 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C6013 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C6014 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C6017 | ECJ1VB1C104K | C CHIP 16V 0.1UF | |
| C6018 | ECJ2VF1H104Z | C CHIP 50V 0.1UF | |
| C6020 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C6022 | ECJ1VF1H103Z | C CHIP 50V 0.01UF | |
| C6023 | ECJ1VB1H102K | C CHIP 50V 1000PF | |
| C6025 | ECEV0JA470S | ELECTROLYTIC CHIP 6.3V 47UF | |
| C6028 | ECJ1VC1H060D | C CHIP 50V 6PF | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| C6029 | ECJ2VF1C105Z | C CHIP 16V 1UF | |
| C6031 | ECJ1VB1H103K | C CHIP 50V 0.01UF | |
| C6044 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C6201 | ECJ1VB1C104K | C CHIP 16V 0.1UF | |
| C6202 | ECJ1VB1C104K | C CHIP 16V 0.1UF | |
| C6207 | ECJ1VC1H101J | C CHIP 50V 100PF | |
| C6208 | ECJ2VF1C224Z | C CHIP 16V 0.22UF | |
| C6214 | ECJ1VB1H102K | C CHIP 50V 1000PF | |
| C6220 | ECJ2YF1C155Z | C CHIP 16V 1.5UF | |
| C6221 | ECJ1VB1H102K | C CHIP 50V 1000PF | |
| C6222 | ECJ2YB1A105K | C CHIP 10V 1UF | |
| C6223 | ECST0JY226R | TANTALUM CHIP 6.3V 22UF | |
| C6225 | ECJ1VB1H103K | C CHIP 50V 0.01UF | |

## COILS

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| L302 | G1C470J00006 | COIL CHIP 47UH | |
| L303 | G1C330JA0010 | COIL CHIP 33UH | |
| L305 | G1C3R9J00004 | COIL CHIP 3.9UH | |
| L307 | G1C150J00005 | COIL CHIP 15UH | |
| L308 | G1C100KA0002 | COIL CHIP 10UH | |
| L310 | G1C4R7M00021 | COIL CHIP 4.7UH | |
| L601 | G1C150J00005 | COIL CHIP 15UH | |
| L602 | G1C150J00005 | COIL CHIP 15UH | |
| L605 | G1C150J00005 | COIL CHIP 15UH | |
| L1001 | G1C100MA0059 | COIL CHIP 10UH | |
| L1002 | ELL6SH100M | CHOKE COIL 10UH | |
| L1003 | ELL6SH330M | CHOKE COIL 33UH | |
| L1004 | ELL6SH330M | CHOKE COIL 33UH | |
| L1005 | G1C100MA0065 | CHOKE COIL 10UH | |
| L1006 | G1C100MA0031 | COIL CHIP 10UH | |
| L1007 | G1C100MA0031 | COIL CHIP 10UH | |
| L1008 | G1C100MA0031 | COIL CHIP 10UH | |
| L1009 | G1C470J00006 | COIL CHIP 47UH | |
| L1010 | G1C470J00006 | COIL CHIP 47UH | |
| L1011 | G1C470J00006 | COIL CHIP 47UH | |
| L1012 | G1C100MA0031 | COIL CHIP 10UH | |
| L1014 | G1C100MA0031 | COIL CHIP 10UH | |
| L1015 | G1C100MA0031 | COIL CHIP 10UH | |
| L1016 | G1C100MA0031 | COIL CHIP 10UH | |
| L1017 | ELL6SH330M | CHOKE COIL 33UH | |
| L1018 | ELL6SH101M | CHOKE COIL 100UH | |
| L1019 | G1C100MA0031 | COIL CHIP 10UH | |
| L1020 | G1C100MA0031 | COIL CHIP 10UH | |
| L3001 | G1C220K00013 | COIL CHIP 22UH | |
| L3002 | G1C220K00013 | COIL CHIP 22UH | |
| L3003 | G1C220K00013 | COIL CHIP 22UH | |
| L3004 | G1C220K00013 | COIL CHIP 22UH | |
| L3006 | G1C220K00013 | COIL CHIP 22UH | |
| L3009 | G1C820J00001 | COIL CHIP 82UH | |
| L3011 | G1C470J00006 | COIL CHIP 47UH | |
| L3012 | G1C120J00003 | COIL CHIP 12UH | |
| L3013 | G1C331J00004 | COIL CHIP 330UH | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| L3014 | G1C180J00003 | COIL CHIP 18UH | |
| L3015 | G1C331J00004 | COIL CHIP 330UH | |
| L3016 | G1C470J00006 | COIL CHIP 47UH | |
| L3017 | G1C331J00004 | COIL CHIP 330UH | |
| L3030 | G1C220K00013 | COIL CHIP 22UH | |
| L3031 | G1C470J00006 | COIL CHIP 47UH | |
| L4001 | G1C221KA0002 | COIL CHIP 220UH | |
| L4002 | G1C101KA0002 | COIL CHIP 100UH | |

## CRYSTAL OSCILLATOR

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| X501 | EF0S5004E5 | CRYSTAL OSCILLATOR | |
| X601 | H0A286500001 | CRYSTAL OSCILLATOR | |
| X3001 | LSSX0070 | CRYSTAL OSCILLATOR | |
| X6001 | H0A143500002 | CRYSTAL OSCILLATOR | |
| X6002 | LSSX0072 | CRYSTAL OSCILLATOR | |

## FPC CONNECTORS

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| FP1 | K1MN28B00053 | CONNECTOR 28P | |
| FP2 | K1MN37A00010 | CONNECTOR 37P | |
| FP6 | K1MN28B00053 | CONNECTOR 28P | |
| FP7 | K1MN14A00072 | CONNECTOR 14P | |
| FP8 | K1MN12A00058 | CONNECTOR 12P | |
| FP9 | K1MN22A00053 | CONNECTOR 22P | |
| FP10 | K1MN26A00053 | CONNECTOR 26P | |
| FP11 | K1MN06A00050 | CONNECTOR 6P | |
| FP12 | K1MN06B00140 | CONNECTOR 6P | |
| FP13 | K1MN16B00122 | CONNECTOR 16P | |

## FUSE& PROTECTOR

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| F1001 | K5H202Z00005 | FUSE CHIP 32V 2A | ⚠ |
| F1002 | K5H152Z00006 | FUSE CHIP 32V 1.5A | ⚠ |

## TRANSFORMER

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| T4001 | G2A392C00002 | TRANSFORMER | |

## MISCELLANEOUS

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| 707 | VMTS0035 | CUSHION,RUBBER | |
| 708 | LSMX0171 | INSULATION SHEET,PLASTIC | |
| 712 | LSMF0220 | SHEET,NYLON-RAYON | |

## 13.3.3. BATTERY CATCHER C.B.A. NR

## COMPARISON CHART OF MODELS & MARKS

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |

## INTEGRATED CIRCUITS

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| IC503 | C0ZBZ0000275 | IC, RS232C DRIVER ( D ) | |
| IC503 | C0ZBZ0000540 | IC, RS232C DRIVER ( D ) | |
| IC503 | C1ZBZ0001923 | IC, RS232C DRIVER ( D ) | |
| IC901 | C0HBA0000127 | IC, LINEAR | |

## TRANSISTORS

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| Q901 | 2SD1819A0L | TRANSISTOR SI NPN CHIP | |
| Q901 | B1ABCF000020 | TRANSISTOR SI NPN CHIP | |
| Q902 | 2SD1819A0L | TRANSISTOR SI NPN CHIP | |
| Q902 | B1ABCF000020 | TRANSISTOR SI NPN CHIP | |
| Q903 | 2SD1819A0L | TRANSISTOR SI NPN CHIP | |
| Q903 | B1ABCF000020 | TRANSISTOR SI NPN CHIP | |
| Q904 | UNR521200L | TRANSISTOR SI NPN CHIP | |
| Q904 | B1GBCFLL0012 | TRANSISTOR SI NPN CHIP | |

## DIODES

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| D901 | MAZ80750ML | DIODE ZENER CHIP 7.5V | |
| D1204 | RD20S-T1B | DIODE ZENER CHIP 20V | |
| D1213 | RD12S-T1B | DIODE ZENER CHIP 12V | |
| D1215 | RD20S-T1B | DIODE ZENER CHIP 20V | |

## RESISTORS

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| R506 | ERJ3GEYJ104V | MGF CHIP 1/16W 100K ( D ) | |
| R507 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 ( D ) | |
| R508 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 ( D ) | |
| R509 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K ( D ) | |
| R510 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K ( D ) | |
| R511 | ERJ3GEYJ473V | MGF CHIP 1/16W 47K ( D ) | |
| R512 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 ( D ) | |
| R513 | ERJ3GEY0R00X | MGF CHIP 1/16W 0 ( D ) | |
| R514 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K ( D ) | |
| R515 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K ( D ) | |
| R516 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K ( D ) | |
| R517 | ERJ3GEYJ103X | MGF CHIP 0.06W 10K ( D ) | |
| R522 | ERJ3GEYJ332X | MGF CHIP 1/16W 3.3K ( D ) | |
| R523 | ERJ3GEYJ103X | MGF CHIP 0.06W 10K ( D ) | |
| R525 | ERJ3GEYJ104V | MGF CHIP 1/16W 100K ( D ) | |
| R570 | LSRJ0002 | VARIABLE RESISTOR ( D ) | |
| R571 | LSRJ0002 | VARIABLE RESISTOR ( D ) | |
| R901 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 | |
| R902 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R903 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R904 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R905 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R906 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R907 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R908 | ERJ3GEYJ332V | MGF CHIP 1/16W 3.3K | |
| R909 | ERJ3GEYJ562V | MGF CHIP 1/16W 5.6K | |
| R910 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R911 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R912 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R913 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R914 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R915 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 | |
| R916 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R917 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R918 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R920 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 | |
| R921 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 | |
| R922 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 | |
| R1201 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R4419 | ERJ3GEYJ561V | MGF CHIP 1/16W 560 | |
| R4420 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 | |

## CAPACITORS

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| C521 | ECST0JY106 | TANTALUM CHIP 6.3V 10UF ( D ) | |
| C522 | ECJ1VB1C104K | C CHIP 16V 0.1UF ( D ) | |
| C523 | ECJ1VB1C104K | C CHIP 16V 0.1UF ( D ) | |
| C524 | ECJ1VB1C104K | C CHIP 16V 0.1UF ( D ) | |
| C525 | ECJ1VB1C104K | C CHIP 16V 0.1UF ( D ) | |
| C526 | ECST0JY106 | TANTALUM CHIP 6.3V 10UF ( D ) | |
| C901 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C902 | ECJ1VB1H103K | C CHIP 50V 0.01UF | |
| C903 | ECST0JY106 | TANTALUM CHIP 6.3V 10UF | |
| C904 | ECJ1VB1A105K | C CHIP 10V 1UF | |
| C905 | ECJ1VB1A105K | C CHIP 10V 1UF | |
| C906 | ECJ1VB1A105K | C CHIP 10V 1UF | |
| C907 | ECJ1VB1A105K | C CHIP 10V 1UF | |
| C908 | ECJ1VB0J474K | 6.3V0.47UF | |
| C909 | ECJ1VB1H103K | C CHIP 50V 0.01UF | |
| C910 | ECJ1VB0J334K | C CHIP 6.3V 0.33UF | |
| C912 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C913 | ECST1CY475 | TANTALUM CHIP 16V 4.7UF | |
| C914 | ECJ1VB1H682K | C CHIP 50V 6800P | |
| C915 | ECJ1VB1H103K | C CHIP 50V 0.01UF | |
| C916 | ECJ2YB1A105K | C CHIP 10V 1UF | |
| C917 | ECJ1VB0J474K | C CHIP 6.3V0.47UF | |
| C918 | ECJ1VB0J474K | C CHIP 6.3V0.47UF | |
| C919 | ECJ1VB0J474K | C CHIP 6.3V0.47UF | |
| C921 | ECJ1VB0J474K | C CHIP 6.3V0.47UF | |
| C922 | ECJ1VB1A105K | C CHIP 10V 1UF | |
| C1202 | ECJ1VB1C104K | C CHIP 16V 0.1UF | |
| C1203 | ECJ1VB1C104K | C CHIP 16V 0.1UF | |
| C4422 | ECJ1VB1H222K | C CHIP 50V 2200PF | |

## COILS

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| L503 | J0JBC0000014 | BEAD INDUCTOR ( D ) | |
| L504 | J0JBC0000014 | BEAD INDUCTOR ( D ) | |
| L505 | J0JBC0000014 | BEAD INDUCTOR ( D ) | |
| L506 | G1C220K00013 | COIL CHIP 22UH ( D ) | |
| L901 | G1C150J00005 | COIL CHIP 15UH | |
| L1201 | J0JHC0000054 | BEADS CORE | |
| L1212 | J0JHC0000054 | BEADS CORE | |
| L4421 | J0JBC0000014 | BEAD INDUCTOR | |
| L4422 | J0JBC0000014 | BEAD INDUCTOR | |

## FPC CONNECTORS

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| FP901 | K1MN22B00069 | CONNECTOR 22P | |

## FUSE& PROTECTOR

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| PR1201 | K5H402Z00003 | PROTECTOR CHIP 4A | ⚠ |

## JACKS

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| JK6501 | LSJJ0185 | PC JACK SOCKET ( D ) | |

## MISCELLANEOUS

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| 709 | LSMX0175 | SHEET,NYLON-RAYON | |
| 710 | K1NA09B00002 | SD CARD CONNECTOR ( D ) | |
| 711 | LSMX0171 | SHEET,NYLON-RAYON ( D ) | |

# 13.3.4. LIQUIED CRYSTAL DISPLAY C.B.A.

## INTEGRATED CIRCUITS

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| IC9001 | AN2545FHQ | IC, LINEAR | |
| IC9001 | AN2545NFHQ | IC, LINEAR | |
| IC9002 | C0ABAB000001 | IC, LINEAR | |

## TRANSISTORS

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| Q1203 | UNR511200L | TRANSISTOR SI PNP CHIP | |
| Q1203 | B1GDCFLL0012 | TRANSISTOR SI PNP CHIP | |
| Q1204 | 2SD1819A0L | TRANSISTOR SI NPN CHIP | |
| Q1204 | B1ABCF000020 | TRANSISTOR SI NPN CHIP | |
| Q1205 | 2SD1819A0L | TRANSISTOR SI NPN CHIP | |
| Q1205 | B1ABCF000020 | TRANSISTOR SI NPN CHIP | |
| Q1206 | 2SB1218A0L | TRANSISTOR SI PNP CHIP | |
| Q1206 | B1ADCF000063 | TRANSISTOR SI PNP CHIP | |
| Q1208 | 2SD1819A0L | TRANSISTOR SI NPN CHIP | |
| Q1208 | B1ABCF000020 | TRANSISTOR SI NPN CHIP | |
| Q1209 | 2SD1819A0L | TRANSISTOR SI NPN CHIP | |
| Q1209 | B1ABCF000020 | TRANSISTOR SI NPN CHIP | |
| Q1211 | UNR521300L | TRANSISTOR SI NPN CHIP | |
| Q1211 | B1GBCFNN0009 | TRANSISTOR SI NPN CHIP | |
| Q1213 | B1ABCF000098 | TRANSISTOR SI NPN CHIP | |
| Q1213 | B1ABCF000099 | TRANSISTOR SI NPN CHIP | |
| Q1214 | 2SD1819A0L | TRANSISTOR SI NPN CHIP | |
| Q1214 | B1ABCF000020 | TRANSISTOR SI NPN CHIP | |
| Q1215 | UNR521200L | TRANSISTOR SI NPN CHIP | |
| Q1215 | B1GBCFLL0012 | TRANSISTOR SI NPN CHIP | |
| Q9051 | 2SD11190RL | TRANSISTOR SI NPN CHIP | ⚠ |
| Q9051 | B1ABPC000007 | TRANSISTOR SI NPN CHIP | ⚠ |
| Q9052 | 2SD11190RL | TRANSISTOR SI NPN CHIP | ⚠ |
| Q9052 | B1ABPC000007 | TRANSISTOR SI NPN CHIP | ⚠ |
| Q9053 | 2SB1218A0L | TRANSISTOR SI PNP CHIP | |
| Q9053 | B1ADCF000063 | TRANSISTOR SI PNP CHIP | |

## DIODES

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| D1203 | MAZ80560LL | DIODE ZENER 5.6V | |
| D1205 | MAZ81000HL | DIODE ZENER 10V | |
| D1206 | MAZ80680ML | DIODE ZENER 6.8V | |

## RESISTORS

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| R1212 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R1213 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R1214 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R1215 | ERJ3GEYJ473V | MGF CHIP 1/16W 47K | |
| R1216 | ERJ3GEYJ223V | MGF CHIP 1/16W 22K | |
| R1217 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R1218 | ERJ3GEYJ223V | MGF CHIP 1/16W 22K | |
| R1219 | ERJ3GEYJ821V | MGF CHIP 1/16W 820 | |
| R1220 | ERJ3GEYJ562V | MGF CHIP 1/16W 5.6K | |
| R1222 | ERJ3GEYJ393V | MGF CHIP 1/16W 39K | |
| R1225 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R1226 | ERJ3GEYJ473V | MGF CHIP 1/16W 47K | |
| R9004 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R9005 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R9006 | ERJ3GEYJ102V | MGF CHIP 1/16W 1K | |
| R9010 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R9011 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R9012 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R9013 | ERJ3GEYJ561V | MGF CHIP 1/16W 560 | |
| R9014 | ERJ3GEYJ153V | MGF CHIP 1/16W 15K | |
| R9015 | ERJ3GEYJ123V | MGF CHIP 1/16W 12K | |
| R9016 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R9017 | ERJ6GEY0R00V | MGF CHIP 1/10W 0 | |
| R9018 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 | |
| R9019 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 | |
| R9020 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R9021 | ERJ6GEYJ101V | MGF CHIP 1/10W 100 | |
| R9022 | ERJ3GEYJ101V | MGF CHIP 1/16W 100 | |
| R9023 | ERJ3GEYJ473V | MGF CHIP 1/16W 47K | |
| R9024 | ERJ3GEYJ104V | MGF CHIP 1/16W 100K | |
| R9025 | ERJ6GEYJ682V | MGF CHIP 1/10W 6.8K | |
| R9026 | ERJ3GEYJ473V | MGF CHIP 1/16W 47K | |
| R9027 | ERJ3GEYJ472V | MGF CHIP 1/16W 4.7K | |
| R9028 | ERJ3GEYJ223V | MGF CHIP 1/16W 22K | |
| R9029 | ERJ3GEYJ123V | MGF CHIP 1/16W 12K | |
| R9030 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R9031 | ERJ3GEYJ103V | MGF CHIP 1/16W 10K | |
| R9032 | ERJ3GEYJ153V | MGF CHIP 1/16W 15K | |
| R9051 | ERJ3GEYJ182V | MGF CHIP 1/16W 1.8K | |
| R9052 | ERJ8GEYJ102V | MGF CHIP 1/8W 1K | |
| R9054 | ERJ3GEYJ222V | MGF CHIP 1/16W 2.2K | |
| R9058 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 | |
| W1201 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 | |
| W1202 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 | |
| W1203 | ERJ8GEY0R00V | MGF CHIP 1/8W 0 | |
| W1204 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 | |
| W1205 | ERJ8GEY0R00V | MGF CHIP 1/8W 0 | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| W1206 | ERJ8GEY0R00V | MGF CHIP 1/8W 0 | |
| W1207 | ERJ8GEY0R00V | MGF CHIP 1/8W 0 | |
| W1208 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 | |
| W1209 | ERJ8GEY0R00V | MGF CHIP 1/8W 0 | |
| W1210 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 | |
| W1211 | ERJ8GEY0R00V | MGF CHIP 1/8W 0 | |
| W1212 | ERJ8GEY0R00V | MGF CHIP 1/8W 0 | |
| W1215 | ERJ8GEY0R00V | MGF CHIP 1/8W 0 | |
| W1216 | ERJ8GEY0R00V | MGF CHIP 1/8W 0 | |
| W1217 | ERJ8GEY0R00V | MGF CHIP 1/8W 0 | |
| W1218 | ERJ8GEY0R00V | MGF CHIP 1/8W 0 | |
| W1219 | ERJ8GEY0R00V | MGF CHIP 1/8W 0 | |
| W1220 | ERJ8GEY0R00V | MGF CHIP 1/8W 0 | |
| W1221 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 | |
| W1222 | ERJ6GEY0R00V | MGF CHIP 1/10W 0 | |
| W9001 | ERJ8GEY0R00V | MGF CHIP 1/8W 0 | |
| W9002 | ERJ8GEY0R00V | MGF CHIP 1/8W 0 | |
| W9003 | ERJ6GEY0R00V | MGF CHIP 1/10W 0 | |
| W9004 | ERJ8GEY0R00V | MGF CHIP 1/8W 0 | |
| W9005 | ERJ8GEY0R00V | MGF CHIP 1/8W 0 | |
| W9006 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 | |
| W9007 | ERJ6GEY0R00V | MGF CHIP 1/10W 0 | |
| W9008 | ERJ8GEY0R00V | MGF CHIP 1/8W 0 | |
| W9009 | ERJ6GEY0R00V | MGF CHIP 1/10W 0 | |
| W9010 | ERJ8GEY0R00V | MGF CHIP 1/8W 0 | |
| W9011 | ERJ8GEY0R00V | MGF CHIP 1/8W 0 | |
| W9012 | ERJ8GEY0R00V | MGF CHIP 1/8W 0 | |
| W9013 | ERJ8GEY0R00V | MGF CHIP 1/8W 0 | |
| W9014 | ERJ6GEY0R00V | MGF CHIP 1/10W 0 | |
| W9015 | ERJ6GEY0R00V | MGF CHIP 1/10W 0 | |
| W9016 | ERJ8GEY0R00V | MGF CHIP 1/8W 0 | |
| W9017 | ERJ8GEY0R00V | MGF CHIP 1/8W 0 | |
| W9018 | ERJ6GEY0R00V | MGF CHIP 1/10W 0 | |
| W9019 | ERJ6GEY0R00V | MGF CHIP 1/10W 0 | |
| W9020 | ERJ6GEY0R00V | MGF CHIP 1/10W 0 | |
| W9021 | ERJ6GEY0R00V | MGF CHIP 1/10W 0 | |
| W9022 | ERJ8GEY0R00V | MGF CHIP 1/8W 0 | |
| W9023 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 | |
| W9024 | ERJ8GEY0R00V | MGF CHIP 1/8W 0 | |
| W9025 | ERJ8GEY0R00V | MGF CHIP 1/8W 0 | |
| W9026 | ERJ8GEY0R00V | MGF CHIP 1/8W 0 | |
| W9027 | ERJ8GEY0R00V | MGF CHIP 1/8W 0 | |
| W9028 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 | |
| W9029 | ERJ8GEY0R00V | MGF CHIP 1/8W 0 | |
| W9030 | ERJ8GEY0R00V | MGF CHIP 1/8W 0 | |
| W9031 | ERJ6GEY0R00V | MGF CHIP 1/10W 0 | |
| W9051 | ERJ3GEY0R00V | MGF CHIP 1/16W 0 | |

## CAPACITORS

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| C1205 | ECJ1VB1H222K | C CHIP 50V 2200PF | |
| C1206 | ECJ1VB1C104K | C CHIP 16V 0.1UF | |
| C1207 | ECJ1VB1C104K | C CHIP 16V 0.1UF | |
| C1208 | ECJ1VB1C104K | C CHIP 16V 0.1UF | |
| C1209 | ECJ1VB1C104K | C CHIP 16V 0.1UF | |
| C1210 | ECJ1VB1H103K | C CHIP 50V 0.01UF | |
| C1211 | ECJ1VB1C104K | C CHIP 16V 0.1UF | |
| C9003 | ECST0JY475 | TANTALUM CHIP 6.3V 4.7UF | |
| C9007 | ECJ1VF1A105Z | C CHIP 10V 1UF | |
| C9008 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C9009 | ECST0JY226R | TANTALUM CHIP 6.3V 22UF | |
| C9010 | ECJ1VB1H681K | C CHIP 50V 680PF | |
| C9011 | ECJ1VB1C104K | C CHIP 16V 0.1UF | |
| C9012 | ECJ1VB1C104K | C CHIP 16V 0.1UF | |
| C9013 | VCUSJBJ225KB | C CHIP 6.3V 2.2UF | |
| C9014 | ECJ1VB1H152K | C CHIP 50V 1500PF | |
| C9015 | ECST0JY475 | TANTALUM CHIP 6.3V 4.7UF | |
| C9016 | ECST0JY106 | TANTALUM CHIP 6.3V 10UF | |
| C9017 | ECJ1VB1A105K | C CHIP 10V 1UF | |
| C9018 | ECJ1VB1C104K | C CHIP 16V 0.1UF | |
| C9019 | ECST1CY475 | TANTALUM CHIP 16V 4.7UF | |
| C9020 | ECJ1VB1A105K | C CHIP 10V 1UF | |
| C9021 | ECJ1VB1A105K | C CHIP 10V 1UF | |
| C9022 | ECJ2YF1C225Z | C CHIP 16V 2.2UF | |
| C9023 | F1K1C2250005 | C CHIP 16V 2.2UF | |
| C9024 | ECJ2YF1C225Z | C CHIP 16V 2.2UF | |
| C9025 | ECJ1VC1H151J | C CHIP 50V 150PF | |
| C9026 | ECJ2YF1C225Z | C CHIP 16V 2.2UF | |
| C9027 | ECJ1VB1C104K | C CHIP 16V 0.1UF | |
| C9028 | F1J1C1050011 | C CHIP 16V 1UF | |
| C9029 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C9031 | ECST0JY106 | TANTALUM CHIP 6.3V 10UF | |
| C9032 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C9051 | ECUV1A106KBP | C CHIP 10V 10UF | |
| C9052 | ECHU1H153JB5 | C CHIP 50V 0.015PF | |
| C9053 | LSCUCAD150J | C CHIP 2KV 15PF | |
| C9054 | ECJ1VF1C104Z | C CHIP 16V 0.1UF | |
| C9055 | LSCUCAD150J | C CHIP 2KV 15PF | |

## COILS

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| L1202 | ELJFA150KF | COIL 15UH | |
| L1203 | G1C100MA0082 | INDUCTOR CHIP 10UH | |
| L9001 | G1C150J00005 | COIL CHIP 15UH | |
| L9003 | G1C150J00005 | COIL CHIP 15UH | |
| L9005 | G1C150J00005 | COIL CHIP 15UH | |
| L9006 | G1C150J00005 | COIL CHIP 15UH | |
| L9007 | G1C150J00005 | COIL CHIP 15UH | |
| L9051 | G1C680M00011 | CHOKE COIL 68UH | ⚠ |

## FPC CONNECTORS

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| FP1201 | K1MN21B00062 | CONNECTOR 21P | |
| FP9001 | K1MN24B00105 | CONNECTOR 24P | |

## FUSE& PROTECTOR

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| PR9051 | K5H1022A0003 | FUSE 32V 1A | |

## TRANSFORMER
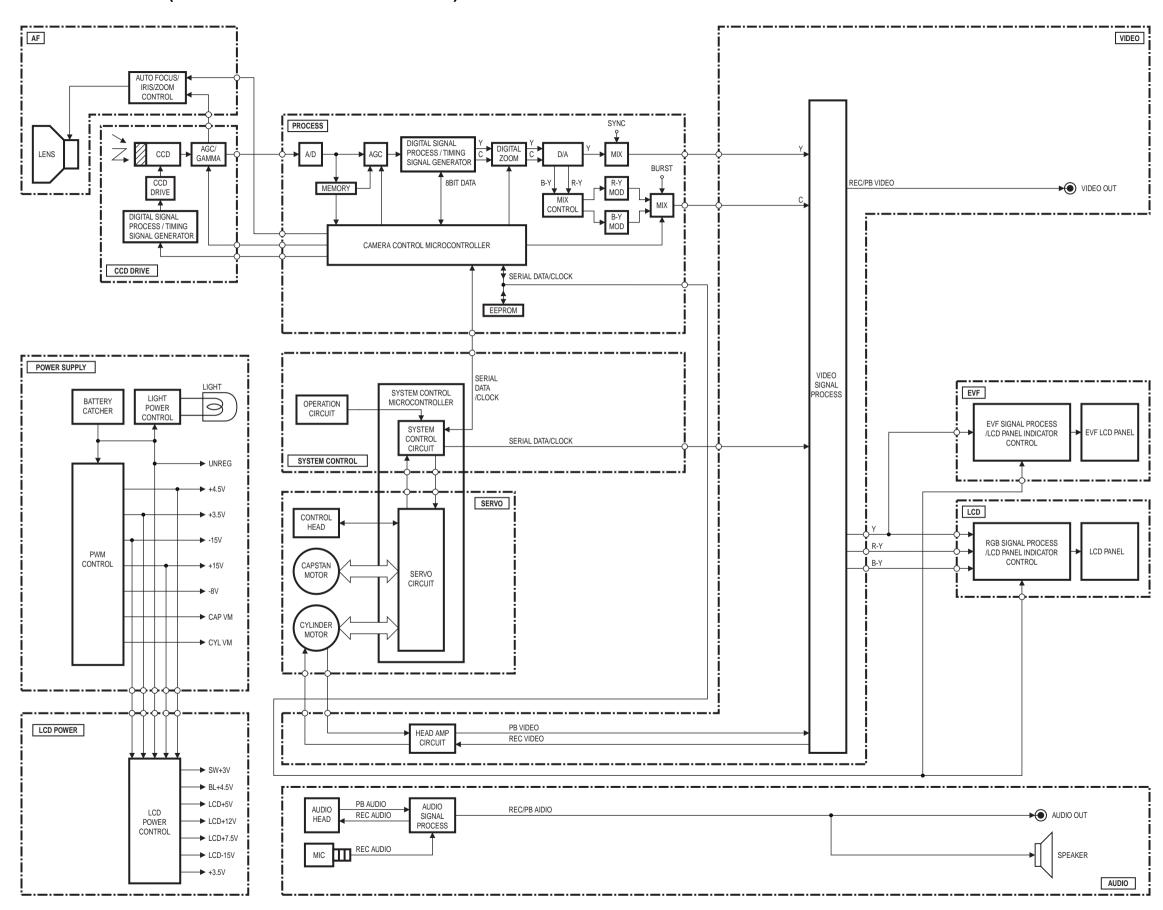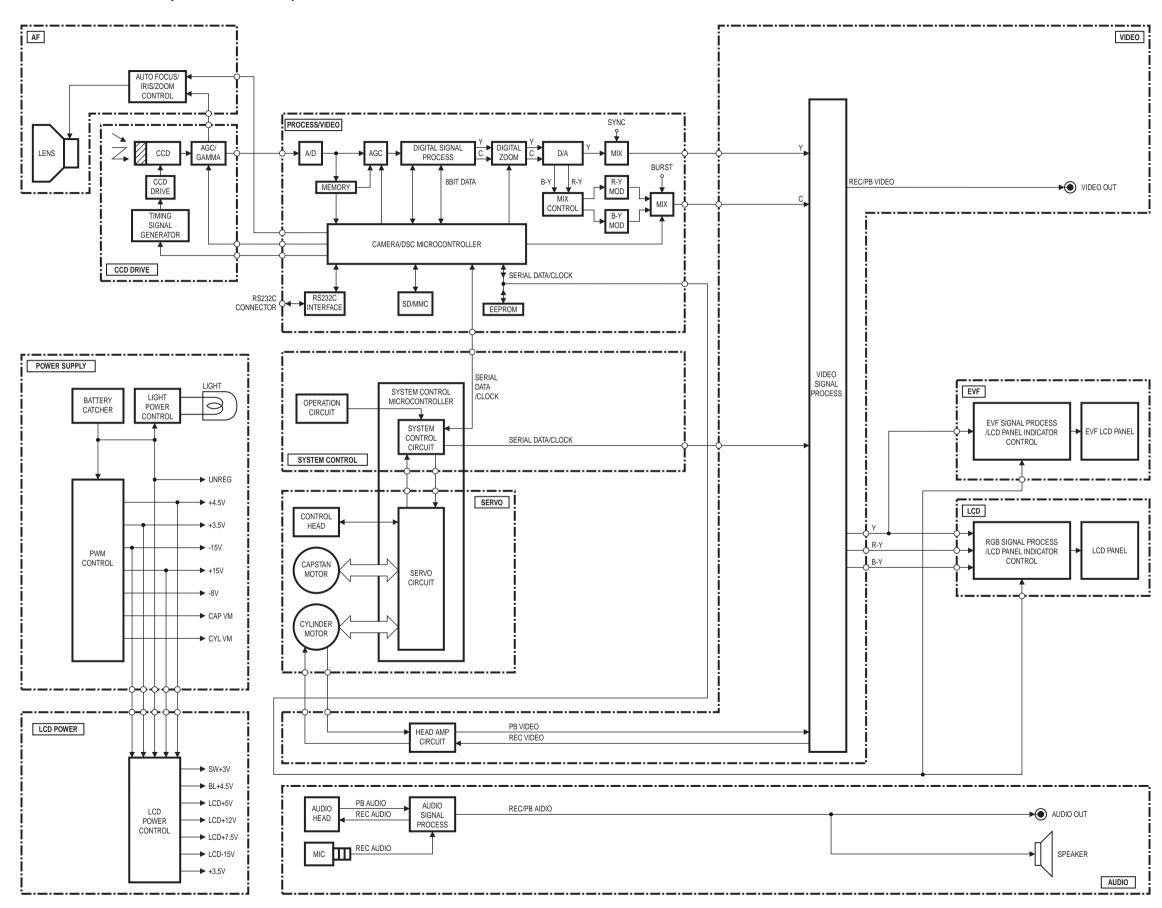
| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| T9051 | ETJV10ZA17AF | TRANSFORMER | ⚠ |

## MISCELLANEOUS
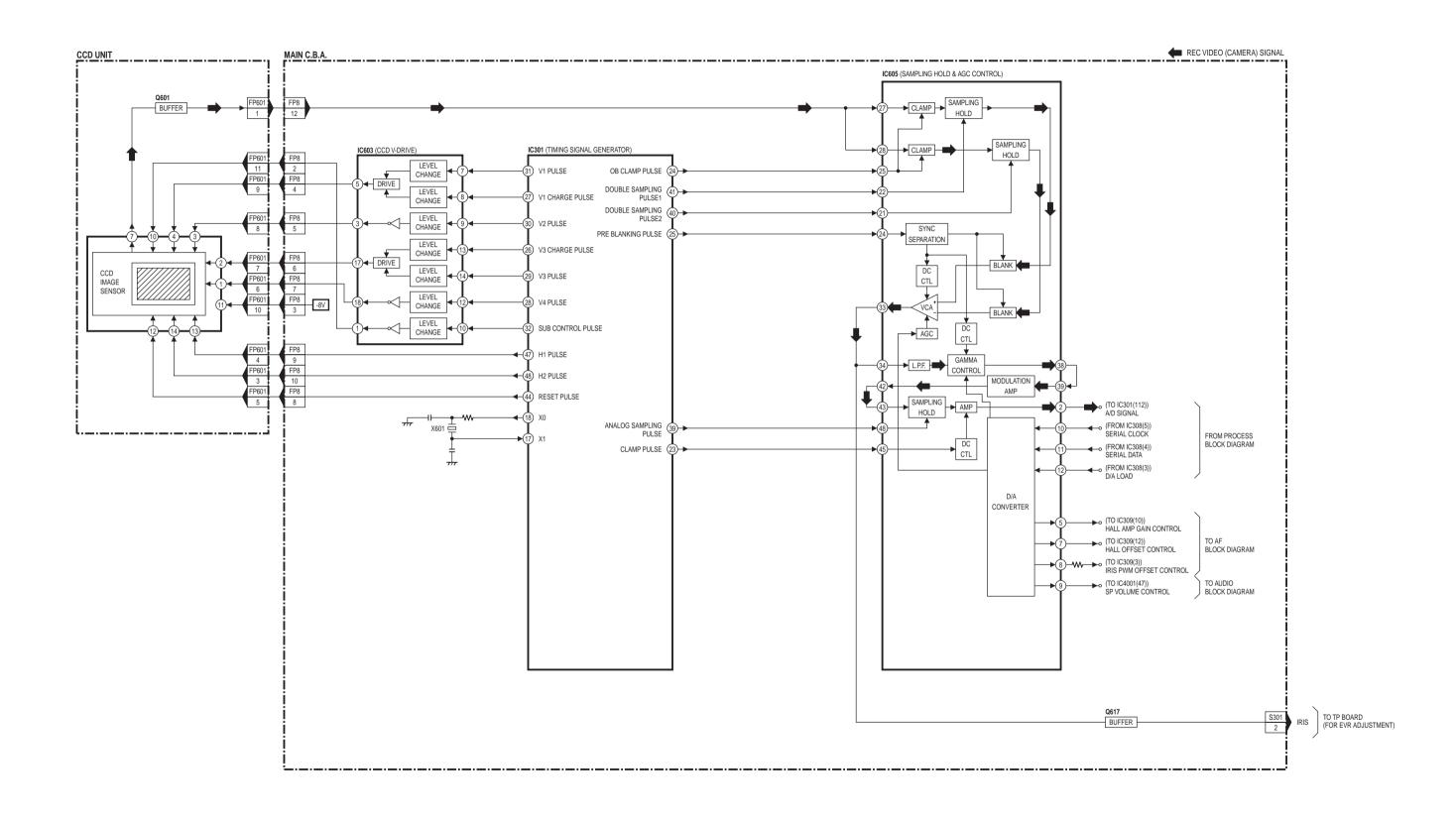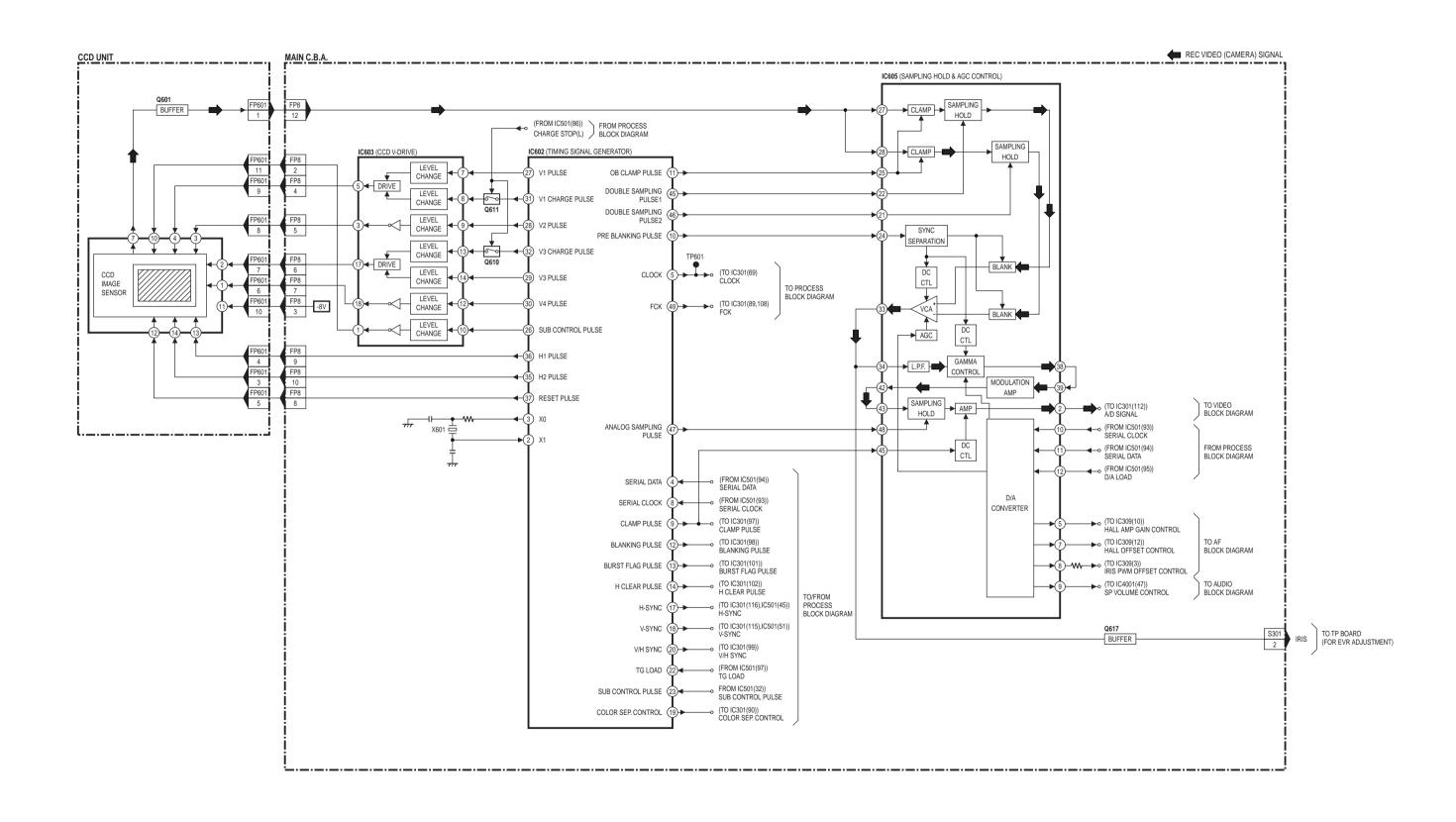
| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| 706 | LSMZ0342 | INSULATION SHEET,PLASTIC | |
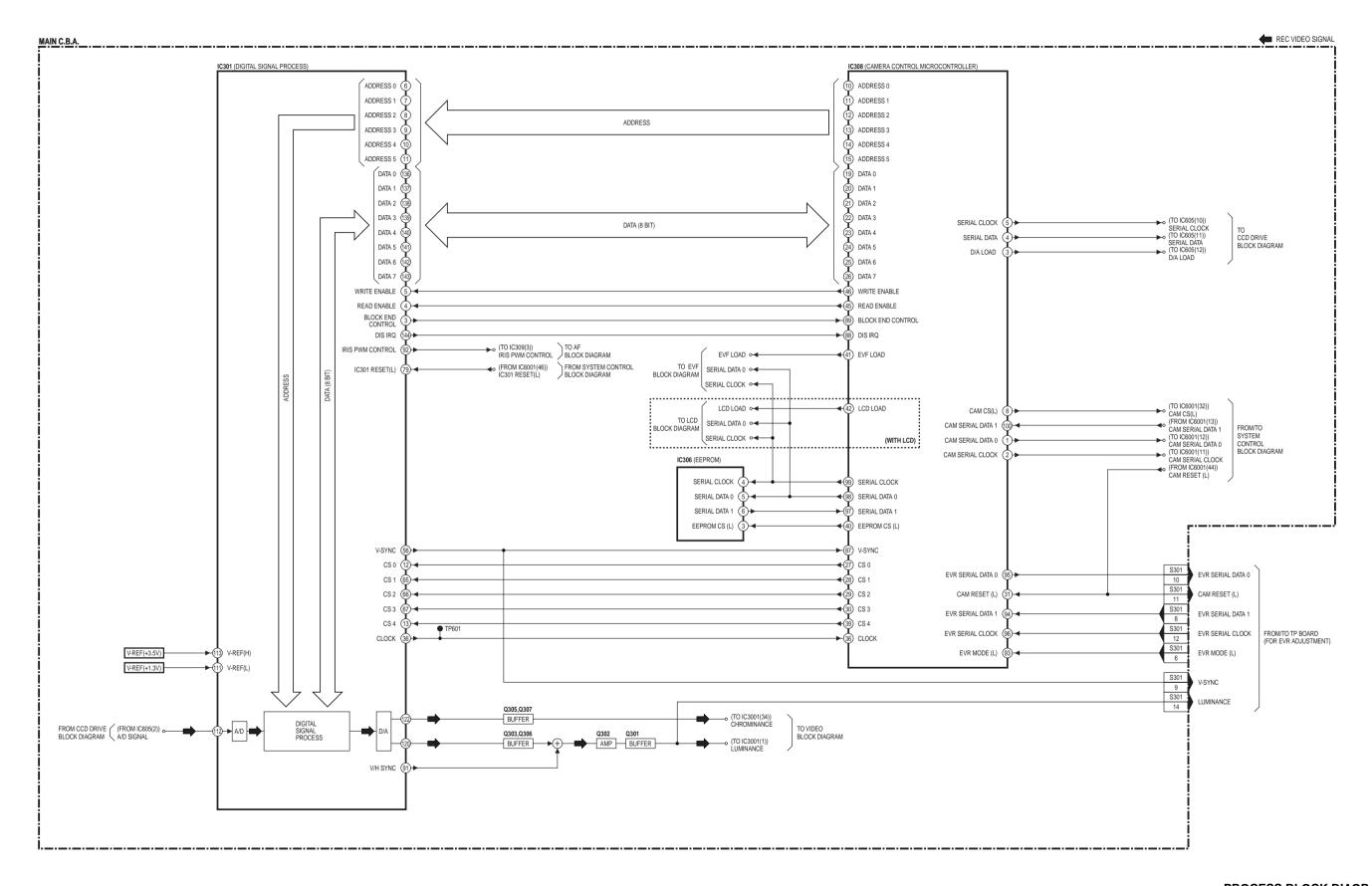
# 14. SCHEMATIC DIAGRAMS FOR PRINTING WITH LETTER SIZE

# OVERALL BLOCK DIAGRAM (Models: VM-L153/PV-L353/PV-L353-K)



**OVERALL BLOCK DIAGRAM**
**VM-L153/PV-L353/PV-L353-K**

# OVERALL BLOCK DIAGRAM (Model: PV-L453)

AF

AUTO FOCUS/IRIS/ZOOM CONTROL

PROCESS/VIDEO

VIDEO

LENS

CCD

AGC/GAMMA

CCD DRIVE

TIMING SIGNAL GENERATOR

CCD DRIVE

A/D

MEMORY

AGC

DIGITAL SIGNAL PROCESS

8BIT DATA

DIGITAL ZOOM

D/A

MIX

SYNC

BURST

B-Y   R-Y

MIX CONTROL

R-Y MOD

B-Y MOD

MIX

Y

C

REC/PB VIDEO

VIDEO OUT

CAMERA/DSC MICROCONTROLLER

SERIAL DATA/CLOCK

RS232C CONNECTOR

RS232C INTERFACE

SD/MMC

EEPROM

VIDEO SIGNAL PROCESS

POWER SUPPLY

BATTERY CATCHER

LIGHT POWER CONTROL

LIGHT

PWM CONTROL

UNREG

+4.5V

+3.5V

-15V

+15V

-8V

CAP VM

CYL VM

SERIAL DATA /CLOCK

OPERATION CIRCUIT

SYSTEM CONTROL MICROCONTROLLER

SYSTEM CONTROL CIRCUIT

SYSTEM CONTROL

SERIAL DATA/CLOCK

EVF

EVF SIGNAL PROCESS /LCD PANEL INDICATOR CONTROL

EVF LCD PANEL

CONTROL HEAD

SERVO

CAPSTAN MOTOR

CYLINDER MOTOR

SERVO CIRCUIT

LCD

Y

R-Y

B-Y

RGB SIGNAL PROCESS /LCD PANEL INDICATOR CONTROL

LCD PANEL

LCD POWER

LCD POWER CONTROL

SW+3V

BL+4.5V

LCD+5V

LCD+12V

LCD+7.5V

LCD-15V

+3.5V

HEAD AMP CIRCUIT

PB VIDEO

REC VIDEO

AUDIO HEAD

PB AUDIO

REC AUDIO

AUDIO SIGNAL PROCESS

REC/PB AIDIO

AUDIO OUT

MIC

REC AUDIO

SPEAKER

AUDIO

OVERALL BLOCK DIAGRAM
PV-L453

# CCD DRIVE BLOCK DIAGRAM  (Models: VM-L153/PV-L353/PV-L353-K)

# CCD DRIVE BLOCK DIAGRAM (Model: PV-L453)



CCD DRIVE BLOCK DIAGRAM
PV-L453

# PROCESS BLOCK DIAGRAM (Models: VM-L153/PV-L353/PV-L353-K)

# PROCESS BLOCK DIAGRAM (Model: PV-L453)

MAIN C.B.A.

**IC301** (DIGITAL SIGNAL PROCESS)

**IC501** (CAMERA/DSC MICROCONTROLLER)

| IC301 | | IC501 |
|---|---|---|
| ADDRESS 0 (126) | ADDRESS (8 BIT) | (7) ADDRESS 0 |
| ADDRESS 1 (125) | | (6) ADDRESS 1 |
| ADDRESS 2 (124) | | (5) ADDRESS 2 |
| ADDRESS 3 (123) | | (4) ADDRESS 3 |
| ADDRESS 4 (122) | | (3) ADDRESS 4 |
| ADDRESS 5 (119) | | (2) ADDRESS 5 |
| ADDRESS 6 (118) | | (17) ADDRESS 6 |
| ADDRESS 7 (117) | | (13) ADDRESS 7 |
| DATA 0 (136) | DATA (8 BIT) | (26) DATA 0 |
| DATA 1 (133) | | (25) DATA 1 |
| DATA 2 (132) | | (24) DATA 2 |
| DATA 3 (131) | | (23) DATA 3 |
| DATA 4 (130) | | (22) DATA 4 |
| DATA 5 (129) | | (21) DATA 5 |
| DATA 6 (128) | | (20) DATA 6 |
| DATA 7 (127) | | (19) DATA 7 |
| WRITE ENABLE (103) | | (85) WRITE ENABLE |
| READ ENABLE (104) | | (84) READ ENABLE |
| BLOCK END CONTROL (91) | | (50) BLOCK END CONTROL |
| DIS IRQ (144) | | (49) DIS IRQ |

IRIS CONTROL (96) → (TO IC309(3)) IRIS PWM CONTROL } TO AF BLOCK DIAGRAM

SERIAL CLOCK (93) → (TO IC602(8)/IC605(10)) SERIAL CLOCK
SERIAL DATA (94) → (TO IC602(4)/IC605(11)) SERIAL DATA
TG LOAD (97) → (TO IC602(22)) TG LOAD
CHARGE STOP(L) (86) → (TO Q610 BASE/Q611 BASE) CHARGE STOP(L)
SUB CONTROL PULSE (32) → (TO IC602(23)) SUB CONTROL PULSE
D/A LOAD (95) → (TO IC605(12)) D/A LOAD
} TO CCD DRIVE BLOCK DIAGRAM

COLOR SEP. CONTROL (90) ← (FROM IC602(19)) COLOR SEP. CONTROL
CLAMP PULSE (97) ← (FROM IC602(9)) CLAMP PULSE
BLANKING PULSE (98) ← (FROM IC602(12)) BLANKING PULSE
V/H SYNC (99) ← (FROM IC602(20)) V/H SYNC
BURST FLAG PULSE (101) ← (FROM IC602(13)) BURST FLAG PULSE
H CLEAR PLUSE (102) ← (FROM IC602(14)) H CLEAR PLUSE
FCK (89) ← (FROM IC602(49)) FCK
FCK (108) ← (FROM IC602(5)) CLOCK
CLOCK (69) ← (FROM IC602(17)) H-SYNC
(FROM IC602(18)) V-SYNC
} FROM CCD DRIVE BLOCK DIAGRAM

EVF LOAD ← (96) EVF LOAD
SERIAL DATA 0 ← } TO EVF BLOCK DIAGRAM
SERIAL CLOCK ←

LCD LOAD ← (90) LCD LOAD
SERIAL DATA 0 ← } TO LCD BLOCK DIAGRAM
SERIAL CLOCK ← **(WITH LCD)**

CAM CS(L) (31) → (TO IC6001(32)) CAM CS(L)
CAM SERIAL DATA 1 (42) ← (FROM IC6001(13)) CAM SERIAL DATA 1
CAM SERIAL DATA 0 (41) → (TO IC6001(12)) CAM SERIAL DATA 0
CAM SERIAL CLOCK (40) → (TO IC6001(11)) CAM SERIAL CLOCK
(FROM IC6001(44)) CAM RESET (L)
} FROM/TO SYSTEM CONTROL BLOCK DIAGRAM

**IC306** (EEPROM)

| IC306 | | IC501 |
|---|---|---|
| SERIAL CLOCK (4) | | (65) SERIAL CLOCK |
| SERIAL DATA 0 (5) | | (67) SERIAL DATA 0 |
| SERIAL DATA 1 (6) | | (66) SERIAL DATA 1 |
| EEPROM CS (L) (3) | | (91) EEPROM CS (L) |

V-SYNC (119) → (51) V-SYNC
H-SYNC (116) → (45) H-SYNC
CS 1 (54) → (16) CS 1
CS 2 (53) → (15) CS 2
CS 3 (87) → (14) CS 3
CS 4 (10) → (12) CS 4

EVR SERIAL DATA 0 (56) → S301 10
CAM RESET (L) (59) → S301 11
EVR SERIAL DATA 1 (55) → S301 8
EVR SERIAL CLOCK (54) → S301 12
EVR MODE (L) (43) → S301 6
} FROM/TO TP BOARD (FOR EVR ADJUSTMENT)

S301 9 V-SYNC

CAM RESET(L) (55) ←

**PROCESS BLOCK DIAGRAM**
**PV-L453**

# VIDEO BLOCK DIAGRAM  (Models: VM-L153/PV-L353/PV-L353-K)

# VIDEO BLOCK DIAGRAM (Model: PV-L453)

# AUDIO BLOCK DIAGRAM

# SYSTEM CONTROL BLOCK DIAGRAM (Models: VM-L153/PV-L353/PV-L353-K)

MAIN C.B.A.

TO TP BOARD (FOR EVF ADJUSTMENT)

LOADING MOTOR 1
LOADING MOTOR 0

S301 36
S301 35
FP1 28
FP1 27

LOADING MOTOR

IC6007 (LOADING MOTOR DRIVE)
UNREG
DRIVE
LOGIC
DRIVE
VCC

IC6001 (SYSTEM CONTROL MICROCONTROLLER)

LOADING MOTOR REV (H) 7
LOADING MOTOR FWD (H) 8

CLOCK (32KHz) 40
IC6005 CS (H) 30
SERIAL CLOCK 14
SERIAL DATA 1 15
SERIAL DATA 0 16

IC6005 (CLOCK IN)
CLOCK (32KHz) — VDD 8
CS (H)
SERIAL CLOCK
SERIAL DATA 0 7
OSC IN 3 — OSC (32KHz) X6002
OSC OUT 2

Q6010
Q6021
UNREG
POWER ON (H) 6

TO POWER SUPPLY BLOCK DIAGRAM (TO Q1001(B)) POWER ON (L)

IC6008 (MEMORY)  NOT USED
SERIAL CLOCK 4
SERIAL DATA 0 5
SERIAL DATA 1 6

IC6008 CS (H) 45  Q6002  NOT USED  CS (L) 3
RESET (L) 8

TOP OPERATION UNIT

KEY DATA 2 84 — FP12 1 — SW *1
KEY DATA 4 81 — FP13 5 — SW SIDE L
EJECT SW 3 — FP12 5 — EJECT
SCAN 4 94 — FP12 4

MECHANISM FPC UNIT

SW UNREG
REG +4.5V
REG +4.5V

BATTERY UNDERCUT 85

SAFETY TAB SW
CASSETTE DOWN SW

FP7 2 — SAFETY TAB BROKEN (H) 77
FP7 9 — CASSETTE DOWN (L) 64
FP7 4 — MODE SW POSITION 1 4
FP7 3 — MODE SW POSITION 2 9

MODE SELECT SW

| PIN NO. OF IC6001 | POSITION 1 (4) | POSITION 2 (9) |
|---|---|---|
| MODE | | |
| STOP/REW | L | L |
| STANDBY | H | L |
| EJECT/REC/PB/PAUSE/CUE/REV/FF | L | H |

IC6203 (TAKEUP REEL SENSOR)
TP6007
FP7 1
FP7 6 — REG +4.5V
TAKEUP REEL PULSE 90

SUPPLY REEL SENSOR
FP7 8 — SUPPLY REEL PULSE 80
Q6013 SENSOR LED DRIVE
FP7 12 — TP6006 — SENSOR LED ON (H) 91
FP7 14 — SUPPLY PHOTO TR (L) 86

SENSOR LED  SUPPLY PHOTO TR

LOAD 57 — (TO IC3001(62)) LOAD
OSD BLANKING 59 — (TO IC3001(78)) OSD(DATE/TIME) DATA
OSD(DATE/TIME) DATA 61
OSD BLANKING 58 — (TO IC3001(75,77)) OSD DATA
OSD DATA 60
ROTARY SW 98 — (TO IC3001(60)) ROTARY SW
ENV-VOLTAGE 89 — (FROM IC3501(27)) ENV-VOLTAGE

(TO IC3001(64)) SERIAL CLOCK
(TO IC3001(63)) SERIAL DATA 0

TO/FROM VIDEO BLOCK DIAGRAM

CAM CS(L) 32 — (FROM IC308(8)) CAM CS(L)
IC301 RESET(L) 46 — (TO IC301(79)) IC301 RESET(L)
CAM SERIAL CLOCK 11 — (FROM IC308(2)) CAM SERIAL CLOCK
CAM SERIAL DATA 0 12 — (FROM IC308(1)) CAM SERIAL DATA 0
CAM SERIAL DATA 1 13 — (TO IC308(100)) CAM SERIAL DATA 1
AUDIO RESET (L) 44 — (TO IC308(31)) CAM RESET (L)

TO/FROM PROCESS BLOCK DIAGRAM

(TO Q4001(B)) AUDIO RESET (L)
AUDIO MUTE(H) 56 — (TO IC4001(4)) AUDIO MUTE(H)
AUDIO REC/PB CONTROL 29 — (TO IC4001(19,20)) AUDIO REC/PB CONTROL
SPEAKER ON(L) 17 — (TO IC4001(7)) SPEAKER ON(L)

TO AUDIO BLOCK DIAGRAM

SIDE L OPERATION UNIT
POWER
CAMERA OFF VCR
REC

POWER SW 1 — FP13 8
REC (L) 2 — FP13 7
SCAN 1 97 — FP13 13
SCAN 2 96 — FP13 10
SCAN 3 95 — FP13 14
*2
DEW SENSOR 88 — FP13 15 — DEW SENSOR
DEW +B 92

+4.5V  *3
KEY IN 1 10 — TP6011 — TP6012
Q6012
(FROM IC1001(17)) VOLTAGE DOWN
CLOCK +B 47

D6001
(FROM FP2(22)) BACK UP VOLTAGE
FROM POWER SUPPLY BLOCK DIAGRAM

IC6006 +4.5V REGULATOR
IC6002 RESET
UNREG
RESET (L) 25
VDD 36
VDD 51
VDD 73

TO VIDEO BLOCK DIAGRAM — VIDEO DELAY REC (H) 27
TO AUDIO BLOCK DIAGRAM — AUDIO DELAY REC (H) — Q6004 — REG +4.5V

CYLINDER UNIT
FLYING ERASE HEAD
FLYING ERASE OSC
FP6 7
Q6008
FLYING ERASE ON (H) 26
X6001 OSC (8MHz)
OSC 1 37
OSC 2 38

## IC6001 KEY VOLTAGE CHART

(VCR MODE)

| TERMINAL VOLTAGE | OPERATION BUTTON | |
|---|---|---|
| | KEY DATA 2 (PIN 84) | KEY DATA 4 (PIN 81) |
| 3.42~3.78V | --- | --- |
| 2.52~2.88V | FF/SEARCH | --- |
| 1.62~1.98V | REW/SEARCH | AUTO TRACKING |
| 0.72~1.08V | PLAY/STILL | DOWN |
| 0~0.18V | STOP | UP |

(CAMERA MODE)

| TERMINAL VOLTAGE | OPERATION BUTTON | |
|---|---|---|
| | KEY DATA 2 (PIN 84) | KEY DATA 4 (PIN 81) |
| 3.42~3.78V | LIGHT | --- |
| 2.52~2.88V | EIS | MANUAL FOCUS/SET |
| 1.62~1.98V | FADE | MENU |
| 0.72~1.08V | STILL/STROBE | DOWN/NEAR |
| 0~0.18V | BACKLIGHT | UP/FAR |

*1 Refer to IC6001 KEY VOLTAGE CHART.

*2 NOTE
In case that the dew sensor detects dew condensation, the voltage of pin 88 becomes approx. 0.3V or over.

*3 NOTE
To defeat the safety function, connect a diode between TP6011 and TP6012, or select the H. Safety defeat in service mode.
Refer to NOTE1 of "Extension cables for service" in service notes section for more information.

SYSTEM CONTROL BLOCK DIAGRAM
VM-L153/PV-L353/PV-L353-K

# SYSTEM CONTROL BLOCK DIAGRAM (Model: PV-L453)

**MAIN C.B.A.**

IC6007 (LOADING MOTOR DRIVE)  
IC6001 (SYSTEM CONTROL MICROCONTROLLER)

TO TP BOARD (FOR EVF ADJUSTMENT)

LOADING MOTOR 1 — S301 36  
LOADING MOTOR 0 — S301 35

LOADING MOTOR  
M

FP1 28 / FP1 27  
DRIVE — LOGIC — VCC  
UNREG

LOADING MOTOR REV (H) 7  
LOADING MOTOR FWD (H) 8  
POWER ON (H) 6  
Q6021 / Q6010 / UNREG

TO POWER SUPPLY BLOCK DIAGRAM (TO Q1001(B)) POWER ON (L)

**IC6005 (CLOCK IN)**

CLOCK (32KHz) 40 — CLOCK (32KHz) 1 — VDD 8  
IC6005 CS (H) 30 — CS (H) 5  
SERIAL CLOCK 14 — SERIAL CLOCK 6  
SERIAL DATA 1 15 — SERIAL DATA 1 7  
SERIAL DATA 0 16  
TP6001  
OSC IN 3 / OSC OUT 2 — OSC (32KHz) X6002

**IC6008 (MEMORY)** NOT USED

SERIAL CLOCK 4  
SERIAL DATA 0 5  
SERIAL DATA 1 6  
CS (L) 3  
RESET (L) 8  
IC6008 CS (H) 45 — Q6002 NOT USED

**MECHANISM FPC UNIT**

SW UNREG  
REG +4.5V  
BATTERY UNDERCUT 85

SAFETY TAB SW — FP7 2 — SAFETY TAB BROKEN (H) 77  
CASSETTE DOWN SW — FP7 9 — CASSETTE DOWN (L) 64  
FP7 4 — MODE SW POSITION 1 4  
FP7 3 — MODE SW POSITION 2 9

MODE SELECT SW

| PIN NO. OF IC6001 | POSITION 1 (4) | POSITION 2 (9) |
|---|---|---|
| MODE | | |
| STOP/REW | L | L |
| STANDBY | H | L |
| EJECT/REC/PB/PAUSE/CUE/REV/FF | L | H |

IC6203 TAKEUP REEL SENSOR  
TP6007  
REG +4.5V  
TAKEUP REEL PULSE 90  
SUPPLY REEL PULSE 80  
SENSOR LED ON (H) 91  
Q6013 SENSOR LED DRIVE  
SUPPLY PHOTO TR (L) 86

SUPPLY REEL SENSOR  
SENSOR LED / SUPPLY PHOTO TR

(TO IC3001(64)) SERIAL CLOCK  
(TO IC3001(63)) SERIAL DATA 0  
LOAD 57 — (TO IC3001(62)) LOAD  
OSD BLANKING 59 — (TO IC3001(78)) OSD(DATE/TIME) DATA  
OSD(DATE/TIME) DATA 61  
OSD BLANKING 58 — (TO IC3001(75,77)) OSD DATA  
OSD DATA 60  
ROTARY SW 98 — (TO IC3001(60)) ROTARY SW  
ENV-VOLTAGE 89 — (FROM IC3501(27)) ENV-VOLTAGE  
TO/FROM VIDEO BLOCK DIAGRAM

CAM CS (L) 32 — (FROM IC501(31)) CAM CS (L)  
CAM SERIAL CLOCK 11 — (FROM IC501(40)) CAM SERIAL CLOCK  
CAM SERIAL DATA 0 12 — (FROM IC501(41)) CAM SERIAL DATA 0  
CAM SERIAL DATA 1 13 — (TO IC501(42)) CAM SERIAL DATA 1  
AUDIO RESET (L) 44 — (TO IC501(59)) CAM RESET (L)  
TO/FROM PROCESS BLOCK DIAGRAM

IC6006 +4.5V REGULATOR  
IC6002 RESET  
UNREG  
RESET (L) 25  
VDD 36  
VDD 51  
VDD 73

TO VIDEO BLOCK DIAGRAM — VIDEO DELAY REC (H)  
TO AUDIO BLOCK DIAGRAM — AUDIO DELAY REC (H)  
VIDEO DELAY REC (H) 27  
REG +4.5V Q6004

(TO Q4001(B)) AUDIO RESET (L)  
SPEAKER ON (L) 17 — (TO IC4001(7)) SPEAKER ON (L)  
AUDIO MUTE (H) 56 — (TO IC4001(4)) AUDIO MUTE (H)  
AUDIO REC/PB CONTROL 29 — (TO IC4001(19,20)) AUDIO REC/PB CONTROL  
TO AUDIO BLOCK DIAGRAM

**CYLINDER UNIT**

FLYING ERASE HEAD  
FLYING ERASE OSC  
FP6 7  
Q6008  
FLYING ERASE ON (H) 26  
X6001 OSC (8MHz)  
OSC 1 37  
OSC 2 38

**TOP OPERATION UNIT**

KEY DATA 2 84 — FP12 1 — SW *1  
KEY DATA 4 81  
EJECT SW 3 — FP12 5 — EJECT  
SCAN 4 94 — FP12 4

**SIDE L OPERATION UNIT**

FP13 5 — SW *1  
PHOTO ON (L) 43 — FP13 12 — PHOTO / CAMERA OFF / VCR  
POWER SW 1 — FP13 8 — POWER  
REC (L) 2 — FP13 7 — REC  
SCAN 1 97 — FP13 13  
SCAN 2 96 — FP13 10  
SCAN 3 95 — FP13 14  
DEW SENSOR 88 — FP13 15 — DEW SENSOR  
DEW +B 92  
*2

+4.5V  
KEY IN 1 10 — TP6011 / TP6012 *3  
Q6012  
CLOCK +B 47  
(FROM IC1001(17)) VOLTAGE DOWN  
D6001  
(FROM FP2(33)) BACK UP VOLTAGE  
FROM POWER SUPPLY BLOCK DIAGRAM

## IC6001 KEY VOLTAGE CHART

**(VCR MODE)**

| TERMINAL VOLTAGE | KEY DATA 2 (PIN 84) | KEY DATA 4 (PIN 81) |
|---|---|---|
| 3.42~3.78V | --- | --- |
| 2.52~2.88V | FF/SEARCH | AUTO TRACKING |
| 1.62~1.98V | REW/SEARCH | MENU |
| 0.72~1.08V | PLAY/STILL | DOWN |
| 0~0.18V | STOP | UP |

**(CAMERA EIS MODE)**

| TERMINAL VOLTAGE | KEY DATA 2 (PIN 84) | KEY DATA 4 (PIN 81) |
|---|---|---|
| 3.42~3.78V | LIGHT | --- |
| 2.52~2.88V | EIS | MANUAL FOCUS/SET |
| 1.62~1.98V | FADE | MENU |
| 0.72~1.08V | STILL/STROBE | DOWN/NEAR |
| 0~0.18V | BACK LIGHT | UP/FAR |

**(CAMERA WIPE MODE)**

| TERMINAL VOLTAGE | KEY DATA 2 (PIN 84) | KEY DATA 4 (PIN 81) |
|---|---|---|
| 3.42~3.78V | LIGHT | --- |
| 2.52~2.88V | --- | MANUAL FOCUS/SET |
| 1.62~1.98V | MODE | MENU |
| 0.72~1.08V | START | SELECT+ DOWN/NEAR |
| 0~0.18V | BACK LIGHT | SELECT- UP/FAR |

**(PHOTO REC MODE)**

| TERMINAL VOLTAGE | KEY DATA 2 (PIN 84) | KEY DATA 4 (PIN 81) |
|---|---|---|
| 3.42~3.78V | LIGHT | --- |
| 2.52~2.88V | --- | MANUAL FOCUS/SET |
| 1.62~1.98V | --- | MENU |
| 0.72~1.08V | TO PHOTO THUMBNAIL MODE | DOWN/NEAR |
| 0~0.18V | BACK LIGHT | UP/FAR |

**(PHOTO THUMBNAIL MODE)**

| TERMINAL VOLTAGE | KEY DATA 2 (PIN 84) | KEY DATA 4 (PIN 81) |
|---|---|---|
| 3.42~3.78V | M. DEL | --- |
| 2.52~2.88V | --- | --- |
| 1.62~1.98V | --- | MENU |
| 0.72~1.08V | M. PLAY | SELECT+ |
| 0~0.18V | TO PHOTO REC MODE | SELECT- |

**(PHOTO PLAY MODE)**

| TERMINAL VOLTAGE | KEY DATA 2 (PIN 84) | KEY DATA 4 (PIN 81) |
|---|---|---|
| 3.42~3.78V | --- | --- |
| 2.52~2.88V | --- | SET |
| 1.62~1.98V | --- | MENU |
| 0.72~1.08V | --- | SELECT+ DOWN |
| 0~0.18V | TO PHOTO THUMBNAIL MODE | SELECT- UP |

*1 Refer to IC6001 KEY VOLTAGE CHART.

*2 NOTE  
In case that the dew sensor detects dew condensation, the voltage of pin 88 becomes approx. 0.3V or over.

*3 NOTE  
To defeat the safety function, connect a diode between TP6011 and TP6012, or select the H. Safety defeat in service mode. Refer to NOTE1 of "Extension cables for service" in service notes section for more information.

**SYSTEM CONTROL BLOCK DIAGRAM PV-L453**

# SERVO BLOCK DIAGRAM

# AF BLOCK DIAGRAM (Models: VM-L153/PV-L353/PV-L353-K)

# POWER SUPPLY BLOCK DIAGRAM   (Models: VM-L153/PV-L353/PV-L353-K)

# POWER SUPPLY BLOCK DIAGRAM (Model: PV-L453)

# LCD POWER BLOCK DIAGRAM

**MAIN C.B.A.**

FROM POWER SUPPLY BLOCK DIAGRAM

CAM +3.5V — FP10 23 / FP9101 23 — FP1201 21 — LCD +3.5V

SW +3V

Q1214

**✱1 IC6001 KEY VOLTAGE CHART (LCD PANEL MODE)** (SW9101,9102)

| TERMINAL VOLTAGE (Pin 79 of IC6001) | LCD PANEL MODE | |
|---|---|---|
| | NORMAL/ REVERSE | OPEN/CLOSE |
| 0V | NORMAL | CLOSE |
| 2.6V | NORMAL | OPEN |
| 1.1V | REVERSE | CLOSE |
| 3.5V | REVERSE | OPEN |

ON : REVERSE
OFF : NORMAL
SW9101
LCD NORMAL
REVERSE SW

Q1203

✱1 (TO IC6001 (79))
LCD MODE — FP10 24 / FP9101 24

Q1215

SW9102
LCD OPEN/ CLOSE SW
ON : OPEN
OFF : CLOSE — FP10 22 / FP9101 22

UNREG — FP10 7 / FP9101 7 — FP1201 7 — Q1213 +5V REGULATOR — LCD +5V

EVF/LCD +15V — FP10 1 / FP9101 1 — FP1201 1 — Q1206 — LCD +12V

Q1208,Q1209 +7.5V REGULATOR — LCD +7.5V

FROM POWER SUPPLY BLOCK DIAGRAM

LCD -15V — FP10 2 / FP9101 2 — FP1201 2 — Q1211 — LCD -15V

BL +4.5V — FP10 3-6 / FP9101 3-6 — FP1201 3-6 — BL +4.5 V

(FROM IC6001(28)) LCD ON (H) — FP10 8 / FP9101 8 — FP1201 8 — Q1204

D1205

Q1205 OVER VOLTAGE DET

**LCD SHAFT UNIT**

**LCD C.B.A.**

**LCD POWER BLOCK DIAGRAM**
**VM-L153/PV-L353/PV-L353-K/PV-L453**

# LCD DRIVE BLOCK DIAGRAM



**LCD DRIVE BLOCK DIAGRAM**
**VM-L153/PV-L353/PV-L353-K/PV-L453**

# EVF BLOCK DIAGRAM  (Models: VM-L153/PV-L353/PV-L353-K)



**COLOR EVF BLOCK DIAGRAM**
**VM-L153/PV-L353/PV-L353-K**

# EVF BLOCK DIAGRAM  (Model: PV-L453)



**COLOR EVF BLOCK DIAGRAM**
**PV-L453**

# TROUBLESHOOTING HINTS FOR SD/MultiMediaCard Error (Model : PV-L453)

**The following ERROR No. will be displayed on the Camcorder LCD Monitor or EVF Monitor when an Error occurred.**

| ERROR No. | Error Description | Possible solution |
|---|---|---|
| **U11** | The initial processing of IC501 for SD/Multi Media Card was failed. (Case 1) | May be caused by bad contact between SD/Multi Media Card and IC501 (Camera/DSC Microcontroller.) Check following items and repair or replace if necessary. ・ Repair contact (solder) of signal lines between FP2 connector on the Main C.B.A. and SD/MMC Slot of the Battery Catcher C.B.A. (There are some resistors (R507,R508,etc.)) ・ Replace IC501 (Camera/DSC Microcontroller) ・ Repair contact (solder) of signal lines between IC501 and FP2 connector(Pin 14 ∼ 19) on the Main C.B.A. |
| **U12** | The initial processing of IC501 for SD/Multi Media Card was failed. (Case 2) May be caused by interruption, such as POWER OFF or the removal of the SD/Multi Media Card, during accessing to the system area of the memory address. | The SD/Multi Media Card is defective. Use a new SD/Multi Media Card. When a defect still goes on, it may be caused by bad contact between SD/Multi Media Card and IC501 (Camera/DSC Microcontroller.) Check following items and repair or replace if necessary. ・ Replace Battery Catcher Unit (Ref No. 30) ・ Replace IC501 (Camera/DSC Microcontroller) ・ Repair contact (solder) of signal lines between IC501 and FP2 connector(Pin 14 ∼ 19) on the Main C.B.A. |
| **U13** | The initial processing of IC501 for SD/Multi Media Card was failed.  (Case 3) May be caused by interruption, such as POWER OFF or the removal of the SD/Multi Media Card, during accessing to the system area of the memory address. | The SD/Multi Media Card is defective. Use a new SD/Multi Media Card. |
| **U14** | Communication Error (SD/Multi Media Card <--> Camcorder) | Install a new SD/Multi Media Card in the Camcorder. Does the camcorder works OK ? — NG → May be caused by IC501 (Camera/DSC Microcontroller) malfunction. Replace IC501 on the Main C.B.A. OK → Caused by SD/Multi Media Card error. Format the original SD/Multi Media Card. If still NG, the original SD/Multi Media Card is defective. Use a new one. |
| **U15** | No SD/Multi Media Card Memory | Delete the data in the SD/Multi Media Card which was recorded by other compatible products. OR Use a new SD/Multi Media Card. |
| **U16** | Captured image (ctg folder) limit exceeded (Max. 215 folders) | Delete the data in the SD/Multi Media Card which was recorded by other compatible products. OR Use a new SD/Multi Media Card. |
| **U17** | Captured image (JPEG file) limit exceeded (Max. 699 files) | Delete the data in the SD/Multi Media Card which was recorded by other compatible products. OR Use a new SD/Multi Media Card. |
| **U30** | Error other than above | May be caused by IC501 (Camera/DSC Microcontroller) malfunction. Replace IC501 on the Main C.B.A. |

# MAIN C.B.A. LSEP8205A1 (A) / LSEP8205B1 (B) / LSEP8205C1 (C)

**\*1 NOTE**
TO DEFEAT THE SAFETY FUNCTION, CONNECT A DIODE BETWEEN TP6011 AND TP6012, OR SELECT THE H. SAFETY DEFEAT IN SERVICE MODE. REFER TO NOTE1 OF "EXTENSION CABLES FOR SERVICE" IN SERVICE NOTES SECTION FOR MORE INFORMATION.

**(COMPONENT SIDE)**

PbF

NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS. FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING, PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

NOTE:
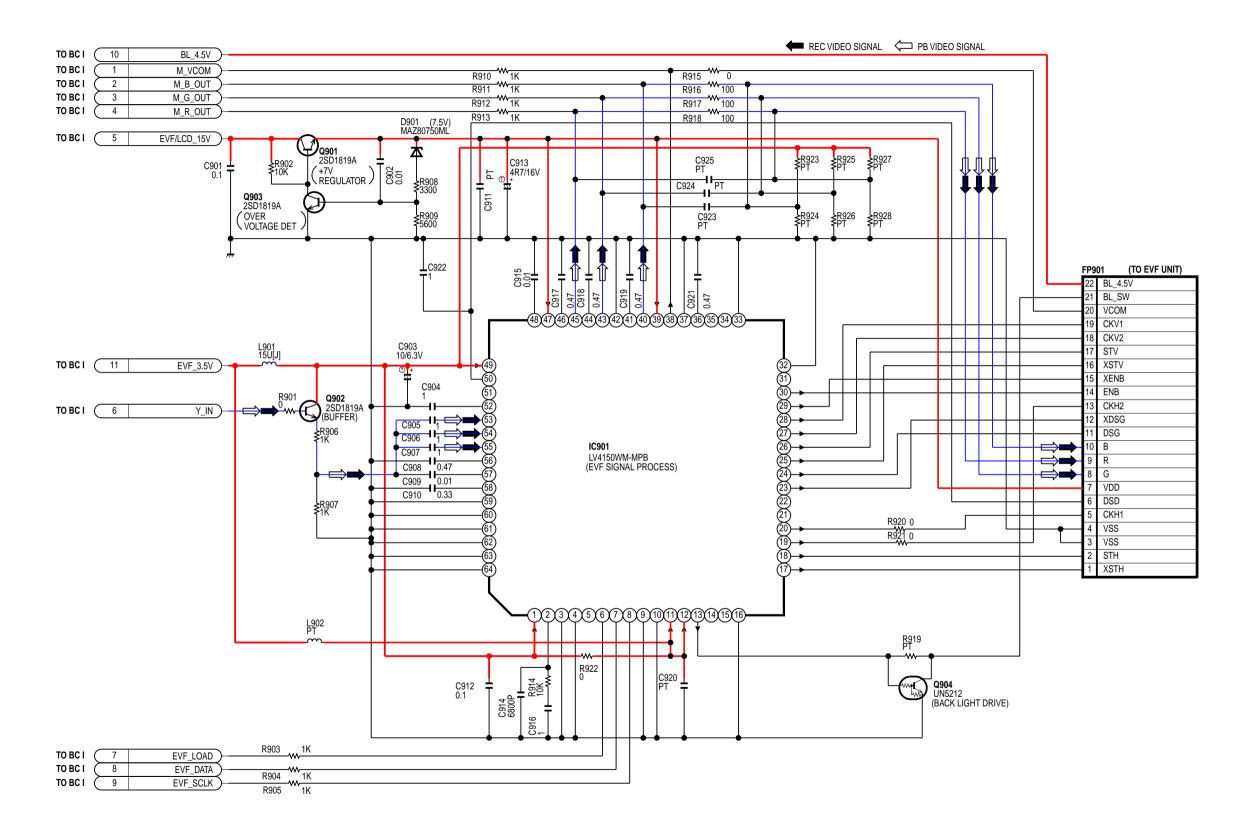CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

### COMPARISON CHART OF MODELS & MARKS

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

⚠ CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE 2A 24/32V FUSE. ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES D' INCENDIE N' UTILISERQUE DES FUSIBLE DE MÊME TYPE 2A 24/32V
2A 24/32V

⚠ CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE 1.5A 24/32V FUSE. ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES D' INCENDIE N' UTILISERQUE DES FUSIBLE DE MÊME TYPE 1.5A 24/32V
1.5A 24/32V

**NOTE: MULTILAYER C.B.A.**
THIS C.B.A. IS Multi-Layer C.B.A. THIS CIRCUIT BOARD SHOWS COMPONENT LAYOUT-PATTERN FOR COMPONENT SIDE AND FOIL SIDE. LAYOUT PATETRNS ARE SINGLE PATTERN FOR EACH SIDE THAT MAKE EASY TO SIGHT THE COMPONENT LAYOUT.

LSJB8205

**MAIN C.B.A.**
**LSEP8205A1**
**/LSEP8205B1**
**/LSEP8205C1**
**VM-L153/PV-L353/PV-L353-K**

# MAIN C.B.A. LSEP8205A1 (A) / LSEP8205B1 (B) / LSEP8205C1 (C)

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS.
FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING,
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

**COMPARISON CHART
OF MODELS & MARKS**

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |

**PbF**

**(FOIL SIDE)**

NOTE: MULTILAYER C.B.A.
THIS C.B.A. IS Multi-Layer C.B.A. THIS CIRCUIT BOARD SHOWS
COMPONENT LAYOUT-PATTERN FOR COMPONENT SIDE AND
FOIL SIDE. LAYOUT PATETRNS ARE SINGLE PATTERN FOR EACH
SIDE THAT MAKE EASY TO SIGHT THE COMPONENT LAYOUT.

**MAIN C.B.A.
LSEP8205A1
/LSEP8205B1
/LSEP8205C1
VM-L153/PV-L353/PV-L353-K**

LSJB8205

# MAIN C.B.A. LSEP8204A1 (D)

**\*1 NOTE**
TO DEFEAT THE SAFETY FUNCTION, CONNECT A DIODE BETWEEN TP6011 AND TP6012, OR SELECT THE H.
SAFETY DEFEAT IN SERVICE MODE. REFER TO NOTE1 OF "EXTENSION CABLES FOR SERVICE" IN SERVICE
NOTES SECTION FOR MORE INFORMATION.

**(COMPONENT SIDE)**

PbF

NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS.
FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING,
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
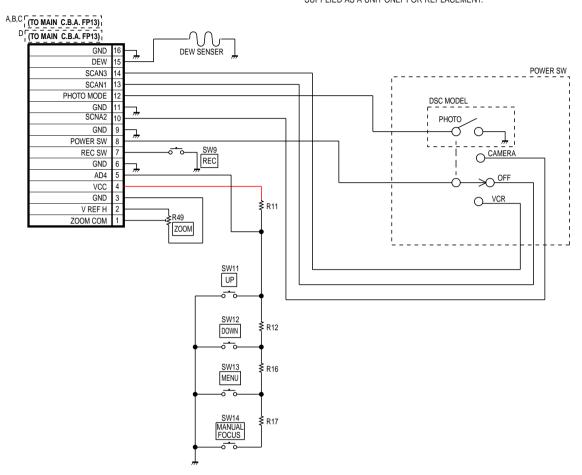REFER TO BEGINNING OF SCHEMATIC SECTION.

**COMPARISON CHART OF MODELS & MARKS**

| MODEL | MARK |
| --- | --- |
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |

**IMPORTANT SAFETY NOTICE:**
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,
USE ONLY THE SPECIFIED PARTS.

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE 2A 24/32V FUSE.
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES
D' INCENDIE N' UTILISERQUE DES FUSIBLE DE MÊME
TYPE 2A 24/32V
⚠ 2A 24/32V

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE 1.5A 24/32V FUSE.
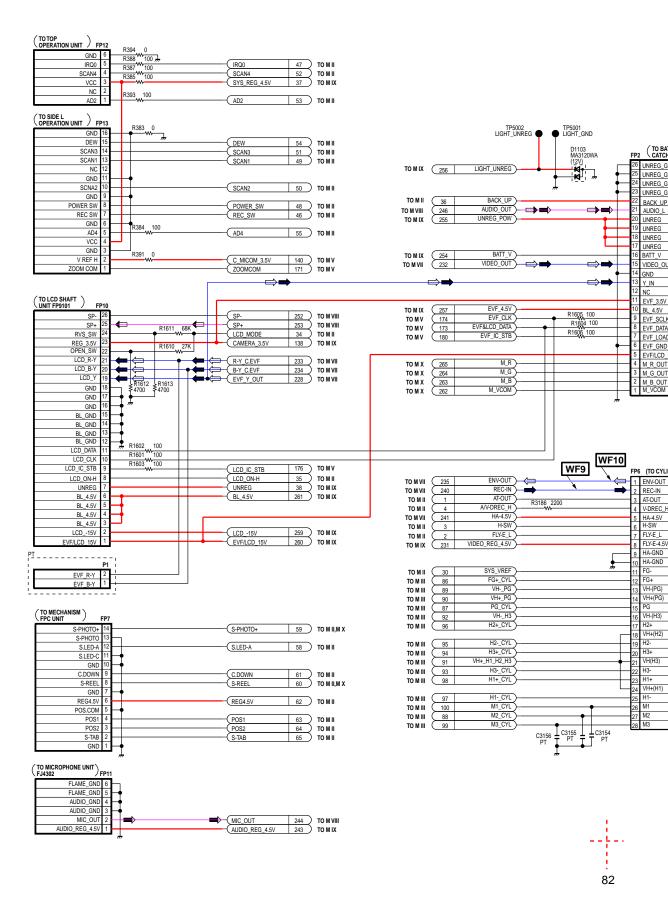ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES
D' INCENDIE N' UTILISERQUE DES FUSIBLE DE MÊME
TYPE 1.5A 24/32V
⚠ 1.5A 24/32V

**NOTE: MULTILAYER C.B.A.**
THIS C.B.A. IS Multi-Layer C.B.A. THIS CIRCUIT BOARD SHOWS
COMPONENT LAYOUT-PATTERN FOR COMPONENT SIDE AND
FOIL SIDE. LAYOUT PATETRNS ARE SINGLE PATTERN FOR EACH
SIDE THAT MAKE EASY TO SIGHT THE COMPONENT LAYOUT.

LSJB8204

**MAIN C.B.A. LSEP8204A1
PV-L453**

# MAIN C.B.A. LSEP8204A1 (D)

**(FOIL SIDE)**

PbF

**COMPARISON CHART OF MODELS & MARKS**

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |

**NOTE: MULTILAYER C.B.A.**
THIS C.B.A. IS Multi-Layer C.B.A. THIS CIRCUIT BOARD SHOWS
COMPONENT LAYOUT-PATTERN FOR COMPONENT SIDE AND
FOIL SIDE. LAYOUT PATETRNS ARE SINGLE PATTERN FOR EACH
SIDE THAT MAKE EASY TO SIGHT THE COMPONENT LAYOUT.

LSJB8204

**MAIN C.B.A. LSEP8204A1**
**PV-L453**

# LCD C.B.A. LSEP8206A1

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,
USE ONLY THE SPECIFIED PARTS.

NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS.
FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING,
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.
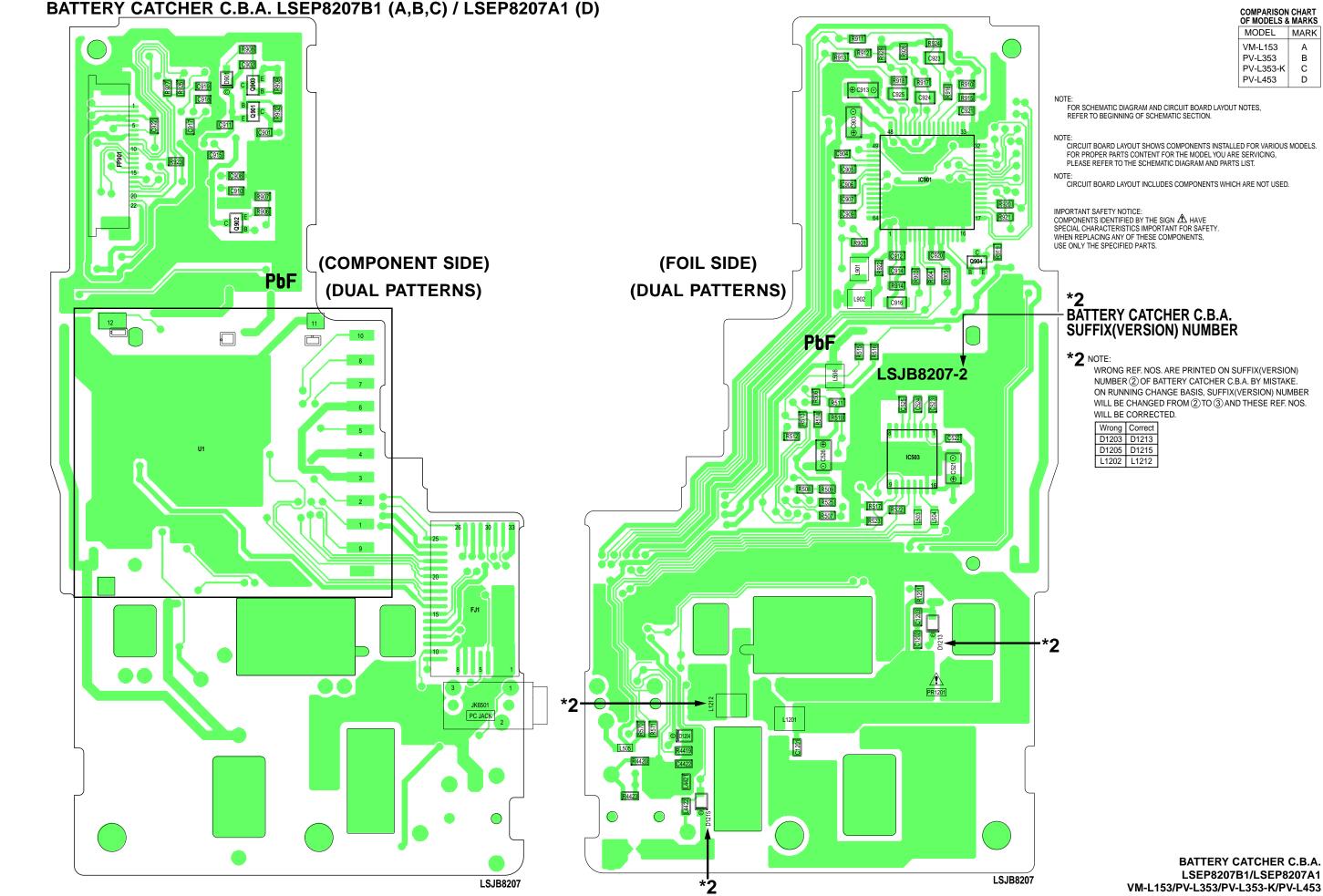
NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

NOTE:
Some resistors on LCD C.B.A. have Ref. Nos. for wire.
These resistors are not discribed on Schematic Diagaram.
When servicing these resistors, please refer to Replacement Parts Lists.



LSJB8206

LCD C.B.A. LSEP8206A1
VM-L153/PV-L353/PV-L353-K/PV-L453

# BATTERY CATCHER C.B.A. LSEP8207B1 (A,B,C) / LSEP8207A1 (D)

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS.
FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING,
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,
USE ONLY THE SPECIFIED PARTS.

**(COMPONENT SIDE)**

**(DUAL PATTERNS)**

PbF

**(FOIL SIDE)**

**(DUAL PATTERNS)**

PbF

*2
BATTERY CATCHER C.B.A.
SUFFIX(VERSION) NUMBER

LSJB8207-2

*2 NOTE:
WRONG REF. NOS. ARE PRINTED ON SUFFIX(VERSION)
NUMBER ② OF BATTERY CATCHER C.B.A. BY MISTAKE.
ON RUNNING CHANGE BASIS, SUFFIX(VERSION) NUMBER
WILL BE CHANGED FROM ② TO ③ AND THESE REF. NOS.
WILL BE CORRECTED.

| Wrong | Correct |
|---|---|
| D1203 | D1213 |
| D1205 | D1215 |
| L1202 | L1212 |

LSJB8207

LSJB8207

BATTERY CATCHER C.B.A.
LSEP8207B1/LSEP8207A1
VM-L153/PV-L353/PV-L353-K/PV-L453

**MECHANISM FPC UNIT**

NOTE:
MECHANISM FPC UNIT IS NOT SERVICEABLE AND IS
SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

Supply Photo Transistor

Sensor
LED

Supply
Real
Sensor

Safety Tab SW

Cassette Down SW    Mode SW

# MAIN PARTS PORTION

| STEP No. | Ref. No. | PART | Section No. | REMOVE | NOTE |
|---|---|---|---|---|---|
| 1 | - | Cassette Cover and LCD Ass'y | ❶ | 2(L-1), 2(L-2), FP9101 | 1 |
| 2 | ⑰ | EVR Cover | ❶ | ⑤⑧⑥ | - |
| 3 | - | Side Case L Ass'y | ❶ | 3⑤③③, 2⑤⑧⑥, 5⑥⓪④, FP13 | 2 |
| 4 | ⑱④ | Sensor Shield Case | ❶ | ⑤⓪④, 2(L-3) | - |
| 5 | - | Top Case Ass'y | ❶ | 2⑤⑧⑥, 3(L-4), FP12 | 3 |
| 6 | - | Front Case Ass'y | ❶ | 2⑤⑧⑥, 2(L-5), FP11 | 4 |
| 7 | - | Lens Ass'y | ❶ | ⑤⑧⑥, FP8, FP9 | - |
| 8 | Ⓔ⑩ | Main C.B.A. | ❶ | 2④②①, ④⑦③, FP1, FP2, FP6, FP7, FP10, Unsolder | 5 |
| 9 | ⑤⓪ | Mechanism Chassis Ass'y | ❶ | ④⑦③, ⑤③③ | 6 |
| 10 | - | Side Case R Ass'y | ❶ | ----- | - |

↑ A    ↑ B    ↑ C    ↑ D    ↑ E    ↑ F

**How to read chart shown above:**
A: Order of Procedure steps.
   When reassembling, perform steps (s) in reverse order.
B: Ref No.
C: Part to be removed or installed.
D: Section No.
E: Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped, or unsoldered.
   2 ⑤③③= 2 Screws ⑤③③, 2(L-1) = 2 Locking Tabs (L-1)
F: Refer to "Notes in chart."

# ❶ MAIN PARTS SECTION

**Note:**
1. Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.
2. The parts indicated by the dotted line ▪▪▪ are for Ass'y only and are not supplied.

# CASSETTE COVER & LCD PORTION
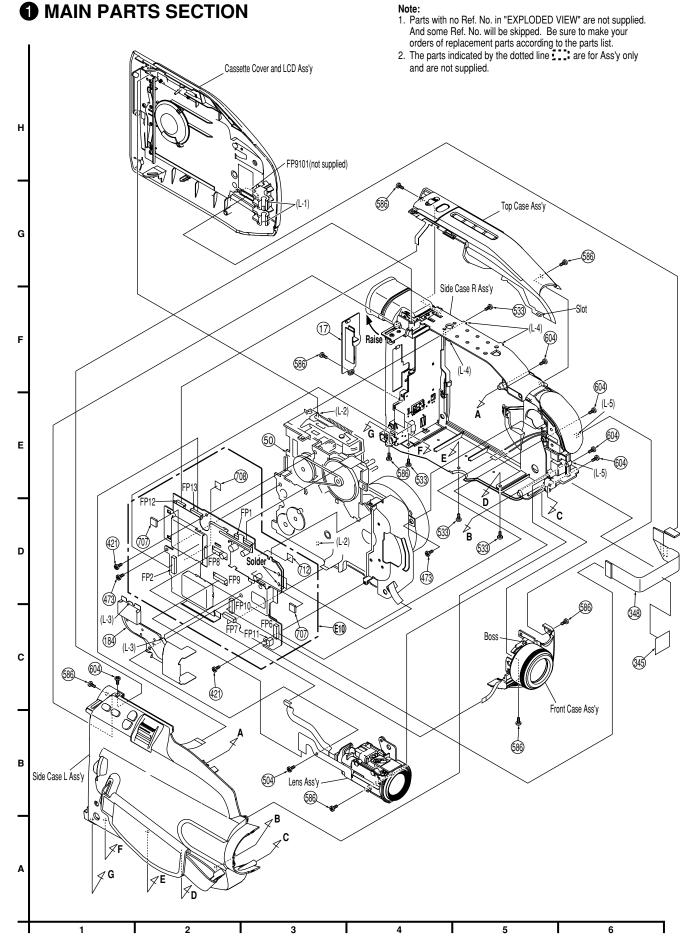
| STEP No. | Ref. No. | PART | Section No. | REMOVE | NOTE |
|---|---|---|---|---|---|
| 1 | ㊣383 | Shaft Cover | ❷ | 4㊐586 | - |
| 2 | - | LCD Case Ass'y | ❷ | 2㊐586, 2(L-1), ㊐397, Unsolder | 7 |
| 3 | ㊐355 | LCD Case A Unit | ❷ | 2㊐469, 8(L-2) | - |
| 4 | ㊐366 | LCD Shaft Unit | ❷ | FP1201 | - |
| 5 | ㊐335 | LCD Case B | ❷ | 4㊐586 | - |
| 6 | Ⓔ30 | LCD C.B.A. | ❷ | 3(L-3), FP9001, Unsolder | - |
| 7 | ㊙211 | LCD Panel Unit | ❷ | 8(L-4) | 8 |
| 8 | ㊙212 | Lead Light Panel Unit | ❷ | ----- | 9 |
| 9 | ㊙203 | Back Light Unit | ❷ | 3(L-5), LCD Sheet Unit | 10 |

A   B   C   D   E   F
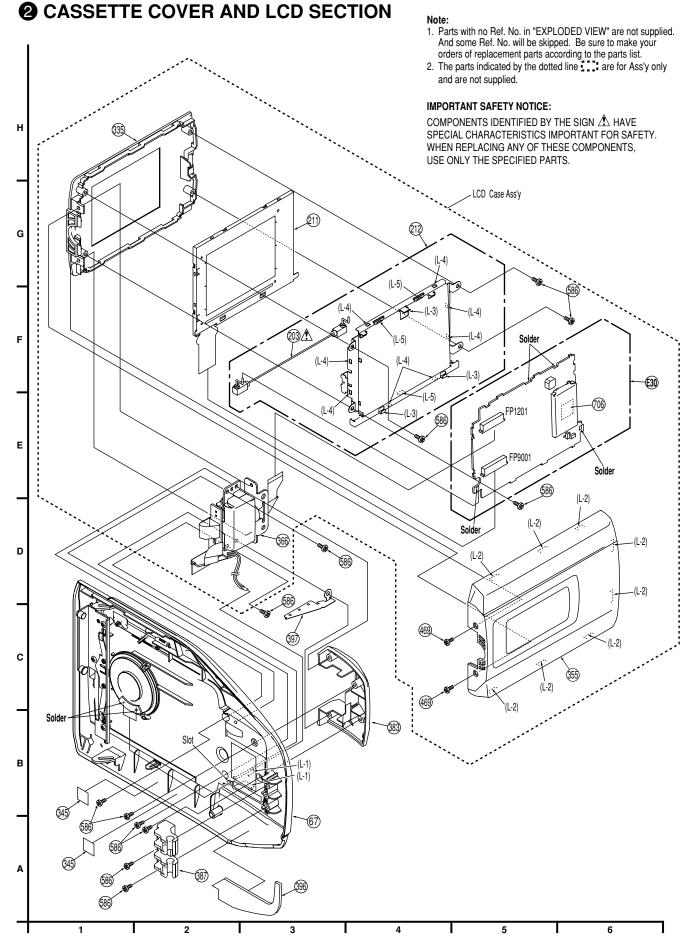
**How to read chart shown above:**
A: Order of Procedure steps.
   When reassembling, perform steps (s) in reverse order.
B: Ref No.
C: Part to be removed or installed.
D: Section No.
E: Identification of part to be removed, unhooked, unlocked,
   released, unplugged, unclamped, or unsoldered.
   2 ㊟533= 2 Screws ㊟533, 2(L-1) = 2 Locking Tabs (L-1)
F: Refer to "Notes in chart."

# ❷ CASSETTE COVER AND LCD SECTION

**Note:**
1. Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.
2. The parts indicated by the dotted line ⋯ are for Ass'y only and are not supplied.

**IMPORTANT SAFETY NOTICE:**

COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

# SIDE CASE L PORTION

| STEP No. | Ref. No. | PART | Section No. | REMOVE | NOTE |
|----------|----------|------|-------------|--------|------|
| 1 | ⑬ | Side L Operation Unit | ❸ | 7⑤⑧⑥, (L-1),<br>⑲⓪ (without Photo Shot function) | 11 |

A    B       C         D       E       F

**How to read chart shown above:**
A: Order of Procedure steps.
   When reassembling, perform steps (s) in reverse order.
B: Ref No.
C: Part to be removed or installed.
D: Section No.
E: Identification of part to be removed, unhooked, unlocked,
   released, unplugged, unclamped, or unsoldered.
   2 ⑤③③= 2 Screws ⑤③③, 2(L-1) = 2 Locking Tabs (L-1)
F: Refer to "Notes in chart."

# ❸ SIDE CASE L SECTION

COMPARISON CHART
OF MODELS & MARKS

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |

# TOP CASE PORTION

| STEP No. | Ref. No. | PART | Section No. | REMOVE | NOTE |
|----------|----------|------|-------------|--------|------|
| 1 | ⑬⓪ | Top Operation Unit | ❹ | 2⑥㉗ | 12 |

   A     B       C        D       E       F

**How to read chart shown above:**
A: Order of Procedure steps.
   When reassembling, perform steps (s) in reverse order.
B: Ref No.
C: Part to be removed or installed.
D: Section No.
E: Identification of part to be removed, unhooked, unlocked,
   released, unplugged, unclamped, or unsoldered.
   2 ⑤㉝= 2 Screws ⑤㉝, 2(L-1) = 2 Locking Tabs (L-1)
F: Refer to "Notes in chart."

# ❹ TOP CASE SECTION

# FRONT CASE PORTION

| STEP No. | Ref. No. | PART | Section No. | REMOVE | NOTE |
|----------|----------|------|-------------|--------|------|
| 1 | ⑫⑧ | Microphone Unit | **❺** | ⑤⑧⑥ | - |

A   B      C        D       E       F

**How to read chart shown above:**
A: Order of Procedure steps.
   When reassembling, perform steps (s) in reverse order.
B: Ref No.
C: Part to be removed or installed.
D: Section No.
E: Identification of part to be removed, unhooked, unlocked,
   released, unplugged, unclamped, or unsoldered.
   2 ⑤③③= 2 Screws ⑤③③, 2(L-1) = 2 Locking Tabs (L-1)
F: Refer to "Notes in chart."

# ❺ FRONT CASE SECTION
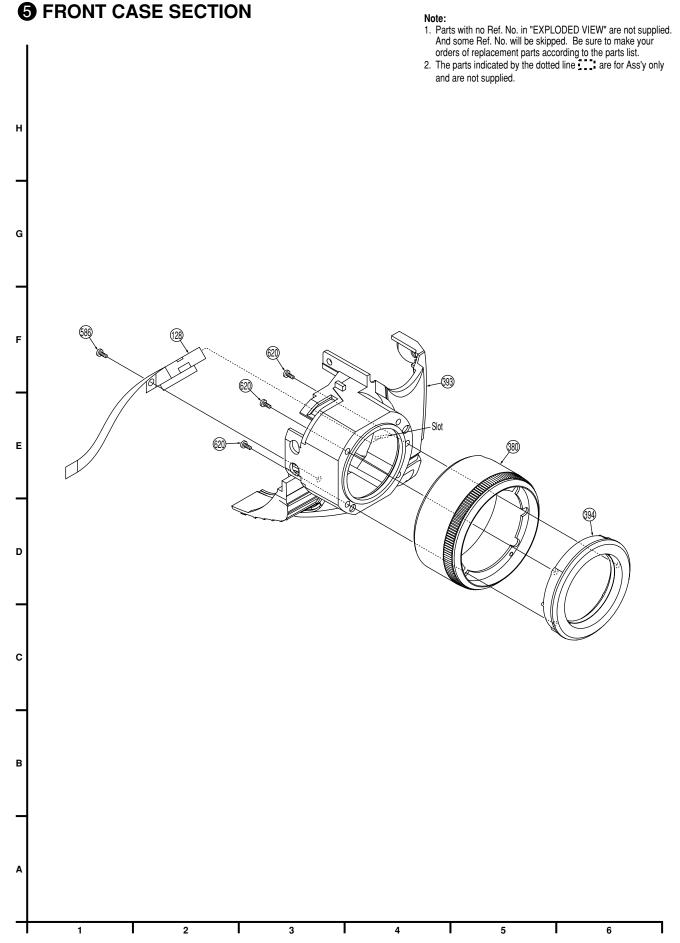
# CCD PORTION & LENS PORTION

| STEP No. | Ref. No. | PART | Section No. | REMOVE | NOTE |
|---|---|---|---|---|---|
| 1 | (E40) | CCD C.B.A. | **6** | 2(502) | 13 |
| 2 | (31) | Filter Rubber | **6** | ----- | 13 |
| 3 | (16) | Optical Filter | **6** | ----- | 13 |
| 4 | (241) | IR Cut Filter | **6** | ----- | 13 |

A    B      C      D        E      F

**How to read chart shown above:**
A: Order of Procedure steps.
   When reassembling, perform steps (s) in reverse order.
B: Ref No.
C: Part to be removed or installed.
D: Section No.
E: Identification of part to be removed, unhooked, unlocked,
   released, unplugged, unclamped, or unsoldered.
   2 (533) = 2 Screws (533), 2(L-1) = 2 Locking Tabs (L-1)
F: Refer to "Notes in chart."

| STEP No. | Ref. No. | PART | Section No. | REMOVE | NOTE |
|---|---|---|---|---|---|
| 1 | - | Lens Piece Ass'y | **6** | ----- | - |
| 2 | (13) | Focus Motor Unit | **6** | 2(648), Unsolder | 14 |
| 3 | (221) | Zoom Motor Unit | **6** | 2(647), (648), Unsolder | 14 |

A    B      C      D        E      F
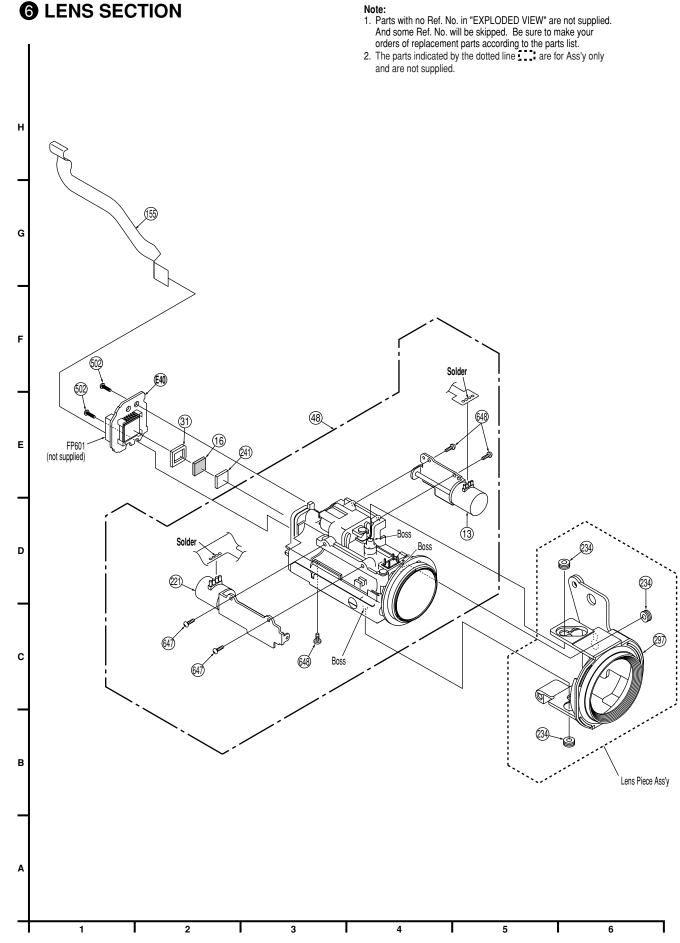
**How to read chart shown above:**
A: Order of Procedure steps.
   When reassembling, perform steps (s) in reverse order.
B: Ref No.
C: Part to be removed or installed.
D: Section No.
E: Identification of part to be removed, unhooked, unlocked,
   released, unplugged, unclamped, or unsoldered.
   2 (533) = 2 Screws (533), 2(L-1) = 2 Locking Tabs (L-1)
F: Refer to "Notes in chart."

# ❻ LENS SECTION

# SIDE CASE R & LAMP & EVF PORTION

| STEP No. | Ref. No. | PART | Section No. | REMOVE | NOTE |
|---|---|---|---|---|---|
| 1 | - | Lamp Ass'y | ❼ | 2⑤⑧⑥ | 15 |
| 2 | ⑱⑥ | Light Protector | ❼ | 3(L-1) | - |
| 3 | ㉞⓪ | Lamp | ❼ | ----- | 16 |

↑ ↑ ↑ ↑ ↑ ↑
A  B  C  D  E  F

**How to read chart shown above:**
A: Order of Procedure steps.
    When reassembling, perform steps (s) in reverse order.
B: Ref No.
C: Part to be removed or installed.
D: Section No.
E: Identification of part to be removed, unhooked, unlocked,
    released, unplugged, unclamped, or unsoldered.
    2 ⑤㉝= 2 Screws ⑤㉝, 2(L-1) = 2 Locking Tabs (L-1)
F: Refer to "Notes in chart."

| STEP No. | Ref. No. | PART | Section No. | REMOVE | NOTE |
|---|---|---|---|---|---|
| 1 | Ⓔ20 | Battery Catcher C.B.A. | ❼ | ⑤⑧⑥, (L-2), FP901 ㉙, Battery | 17 |

↑ ↑ ↑ ↑ ↑ ↑
A  B  C  D  E  F

**How to read chart shown above:**
A: Order of Procedure steps.
    When reassembling, perform steps (s) in reverse order.
B: Ref No.
C: Part to be removed or installed.
D: Section No.
E: Identification of part to be removed, unhooked, unlocked,
    released, unplugged, unclamped, or unsoldered.
    2 ⑤㉝= 2 Screws ⑤㉝, 2(L-1) = 2 Locking Tabs (L-1)
F: Refer to "Notes in chart."

| STEP No. | Ref. No. | PART | Section No. | REMOVE | NOTE |
|---|---|---|---|---|---|
| 1 | ㊱① | EVF Unit | ❼ | ⑤⑧⑥ | 18 |
| 2 | - | EVF Ass'y | ❼ | ⑥㉚, ⑥㉗, (L-3), FP951 | 19 |
| 3 | ㉖⑧ | Eye Cap | ❼ | ----- | 19 |
| 4 | ㊱① | EVF Main Unit | ❼ | ----- | 19 |
| 5 | ㉞④ | EVF F.P.C. | ❼ | ----- | - |

↑ ↑ ↑ ↑ ↑ ↑
A  B  C  D  E  F

**How to read chart shown above:**
A: Order of Procedure steps.
    When reassembling, perform steps (s) in reverse order.
B: Ref No.
C: Part to be removed or installed.
D: Section No.
E: Identification of part to be removed, unhooked, unlocked,
    released, unplugged, unclamped, or unsoldered.
    2 ⑤㉝= 2 Screws ⑤㉝, 2(L-1) = 2 Locking Tabs (L-1)
F: Refer to "Notes in chart."

# ❼ SIDE CASE R SECTION

COMPARISON CHART OF MODELS & MARKS

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |



EVF Ass'y

(L-3)

268

361

FP951(not supplied)

620

61

148

392

627

586

586

344

586

206

Slot

214

472

151

215

216

229

378

586

586

586

152 **(D)**

Boss

(L-2)

710 **(D)**

FP901

Lamp Ass'y

586

188

**Press**

(L-1)

586

186

**(D)** 711

29

379

586

586

709

E20

340 ⚠ **DANGER**

(L-1)

not supplied
**NOTE 1**

**DANGER**:
Use only replacement Lamp (PART NO. VLLW0015) supplied by Panasonic to reduce risk of fire.
Handle new Lamp with cloth or tissue as skin oils will decrease Lamp life. Remove Light Protector and allow Lamp to cool before replacing to avoid possible burn hazard.

**NOTE 1**:
Battey is not supplied as a replacemet part. Purchase CR2025 battery locally if required.

| 1 | 2 | 3 | 4 | 5 | 6 |

# Notes in chart

1. **Removal of Cassette Cover and LCD Ass'y**
   To open the Cassette Cover, place the unit with the Cassette Cover facing upward. Then, with the power on slide the EJECT button, or remove the EVR Cover and slide the Lock Lever through the TP Board slot.



(L-1)                    (L-1)

EJECT button
Remove EVR Cover.
**Slide**
Remove a Screw (586).

**Slide**
Main C.B.A. (S301)
TP Board slot
Lock Lever
any thin object, e.g., a thin metal ruler

**Rear View**
Fig. D2

**Installation of Cassette Cover and LCD Ass'y**
**CAUTION:**
**Be sure to connect the Flexible Flat Cable (LCD F.F.C.) to Connector FP9101 correctly as shown. Otherwise, the F1001, Q1007 and L1018 for -15 V circuit on the Main C.B.A. may be damaged.**



<View with Cassette Cover>
Cassette Cover

**See Caution Label.**

CAUTION ATTENTION
AFTER COMPLETING
SERVICE RE-CONNECT
CABLE AS SHOWN BELOW.
UNE FOIS LA RÉPARATION
TERMINÉE, REBRANCHER
LE CÂBLE COMME ILLUSTRÉ
CI-DESSOUS.
Connector
Connecteur
Blue
Bleu

P.C.B.
Blue
Connector (FP9101)
Flexible Flat Cable (LCD F.F.C.)
Sheet
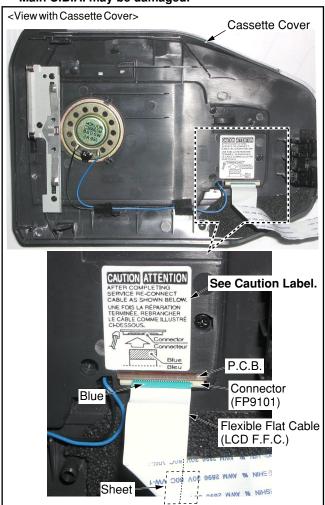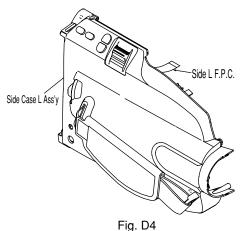
Fig. D3

2. **Removal of Side Case L Ass'y**
   When removing the Side Case L Ass'y, take care not to damage the F.P.C in the unit.



Side L F.P.C.
Side Case L Ass'y

Fig. D4

3. **Installation of Top Case Ass'y**
   1) Install the Top Case Ass'y with 3 Locking Tabs (L-4) in the direction indicated by the arrow.
   2) Connect the Top Operation F.P.C. to the Connector FP12 on the Main C.B.A. as shown.
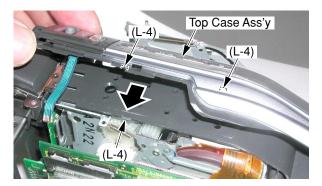




Fig. D5

4. **Removal of Front Case Ass'y**
   Release the Locking Tab (L-5) carefully using any thin object, e.g., a thin metal ruler.
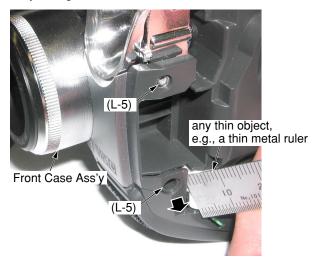


Fig. D6

5. **Installation of Main C.B.A.**
   1) Take care not to damage the Flexible Cables.
   2) Connect the Flexible Cables to the connectors on the Main C.B.A., verifying that the direction of the Flexible Cables is correct. Refer to "REMOVAL/INSTALLATION OF F.P.C. FROM NON ZIF (Zero Insertion Force) CONNECTOR."
   3) After installing the Main C.B.A., crease the Battery Catcher F.P.C. as shown.



**Crease** the Battery Catcher F.P.C.
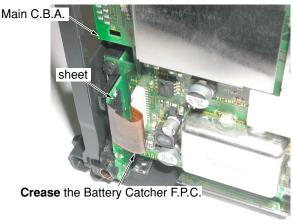
Fig. D7-1

**Main C.B.A. replacement note**
To remove the Main C.B.A., the Lamp Socket Leads must be unsoldered.
When installing the Main C.B.A., solder these leads onto the Main C.B.A.
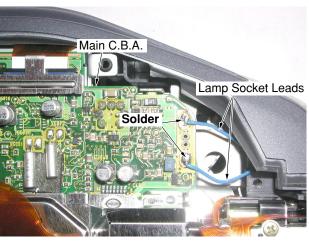


Fig. D7-2

**Soldering Note:**
The Lamp Socket Leads have no polarization.
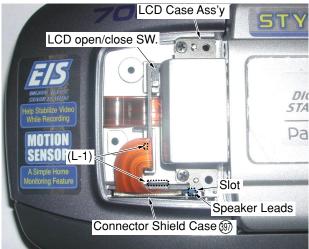
6. **Installation of Mechanism Chassis Ass'y**
   The Mechanism Chassis Ass'y is supplied with a Lock Screw installed. Make sure to remove the Lock Screw from the Cassette Up Unit when replacing the Mechanism Chassis Ass'y.
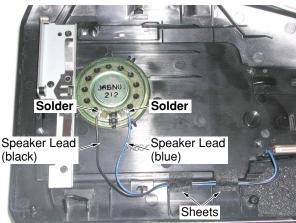
7. **Installation of LCD Case Ass'y**
   1) Set the LCD Case Ass'y and the Connector Shield Case (397) as shown.
   2) Shape the Speaker Leads as shown. Then, solder the Speaker Leads.



**<outside view of Cassette Cover>**



**<inside view of Cassette Cover>**

Fig. D9

8. **Removal/Installation of LCD Panel Unit**
   Use extreme care when handling the LCD Panel Unit to avoid damage, dust, and spots (especially fingerprints), etc.

9. **Installation of Lead Light Panel Unit**
   After replacing the Lead Light Panel Unit, confirm that the Terminal of the Back Light Unit is soldered correctly.
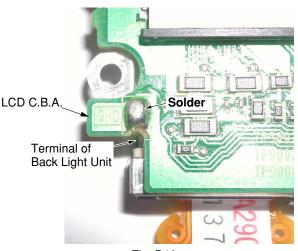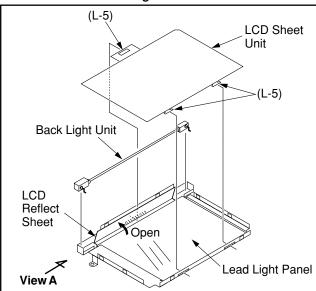


Fig. D10

10. **Installation of Back Light Unit**



a. When installing the Back Light Unit, confirm that the Back Light Unit is positioned as shown below.
b. Use extreme caution when handling the Lead Light Panel and the LCD Sheet Unit to avoid damage, dust, and spots (especially fingerprints),etc.



**View A**
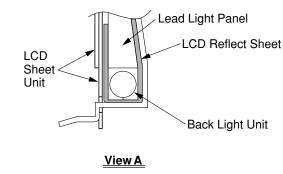
Fig. D11

## 11. Removal of Side L Operation Unit

1) Remove the 7 Screws (586).
2) Remove the Side L Operation Unit while releasing the Locking Tab (L-1) of the Zoom Switch.

Side L Operation Unit

Locking Tab (L-1) on Zoom Switch (outside)
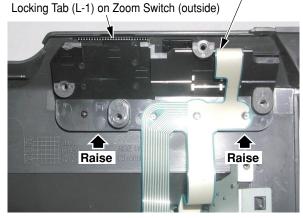


Fig. D12-1

### (For model without Photo Shot function)
### Installation of Stopper Piece

Insert the projection of the Stopper Piece into the slot of the Side L Operation Unit as shown.



Projection of Stopper Piece

Slot of Side L Operation Unit

Bosses

Stopper Piece
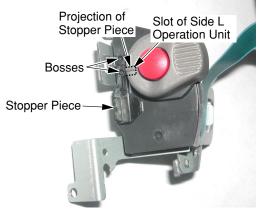
Fig. D12-2

## 12. Installation of Top Operation Unit

Before installing the Top Operation Unit, slide the Tape Eject Knob (107).

## 13. Removal of CCD C.B.A., Filter Rubber, Optical Filter, IR Cut Filter

### CAUTION:

1) When removing the CCD C.B.A., take care that the Optical Filter and the IR Cut Filter do not fall out.
2) Take extreme caution when removing the CCD C.B.A. as it is easily damaged by static electricity. Use a Wrist Strap while removing and installing.
3) Do not touch the CCD window surface.

### Installation of CCD C.B.A., Filter Rubber, Optical Filter, IR Cut Filter

1) Install the IR Cut Filter in the Lens Unit correctly.
   **Note:** Make sure no dust gets on the IR Cut Filter or in the Lens Unit. Clean the IR Cut Filter with lens cleaning paper dampened with lens cleaner if necessary.
2) Install the Optical Filter on the IR Cut Filter correctly.
   **Note:** Make sure no dust gets on the Optical Filter or in the Lens Unit. Clean the Optical Filter with lens cleaning paper dampened with lens cleaner if necessary.
3) Install the Filter Rubber on the Optical Filter correctly as shown below.
   **Note:** Make sure that no dust gets on the Filter Rubber.
4) Install the CCD C.B.A. into the Lens Unit. Then, tighten the 2 Screws (502) while keeping the CCD C.B.A. pressed toward the upper left corner from the CCD side.



CCD C.B.A.
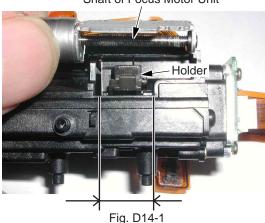
Fig. D13

**Note:** Do not touch the Lens Surface. Clean the surface with lens cleaning paper dampened with lens cleaner if necessary.

14. **Installation of Focus Motor Unit/Zoom Motor Unit**
    Install the Focus Motor Unit/Zoom Motor Unit so that the
    Shaft of the Focus Motor Unit/Zoom Motor Unit is set in the
    Holder within the specified area.

Shaft of Focus Motor Unit



Holder

Fig. D14-1

Shaft of Focus Motor Unit



Holder
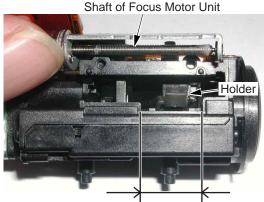
Fig. D14-2

**Soldering of Focus Motor Unit/Zoom Motor Unit**

Lens F.P.C.

**Solder**

Focus Motor Unit



**Solder**

Zoom Motor Unit
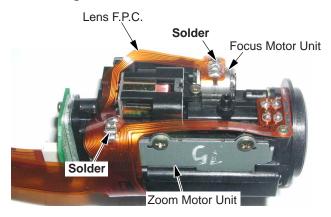
Fig. D14-3

15. **Installation of Lamp Ass'y**
    When installing the Lamp Ass'y, secure the 2 Screws (586)
    with the Lamp Ass'y being pressed down.

16. **Replacement of Lamp**
    When replacing the Lamp, refer to "HOW TO REPLACE
    THE LAMP" in "SERVICE NOTES."

---

### DANGER:

Use only replacement Lamp (PART NO. VLLW0015)
supplied by Panasonic to reduce risk of fire.
Handle new Lamp with cloth or tissue as skin oils will
decrease Lamp life.
Remove Light Protector and allow Lamp to cool before
replacing to avoid possible burn hazard.
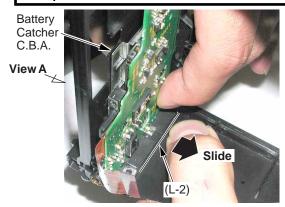
---

17. **Removal of Battery Catcher C.B.A.**
    1) To remove the Battery Catcher Unit, first remove the
       Backup Cover (29) with the Battery.
    2) Remove the Screw (586).
    3) Release the Locking Tab (L-2) while pushing Portion A.
    4) Then, slide the Battery Catcher C.B.A. out as indicated
       by the arrow.
    5) Disconnect the EVF F.P.C from the Connector FP901.

**WARNING:**
**Replace battery with Panasonic or Newsun type
CR2025 only. Use of another battery
may present a risk of fire or explosion.
Caution: Battery may explode if mistreated.
Dispose of used battery promptly. Keep
away from children. Do not recharge, disassemble
or dispose of in fire.**

Battery
Catcher
C.B.A.

**View A**



**Slide**

(L-2)

Portion A



**Push**
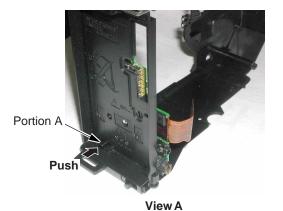
**View A**
Fig. D15

18. **Installation of EVF Unit**
    Insert the EVF F.P.C. into the slot on the Side Case R.
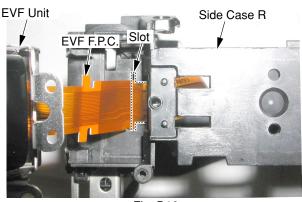


Fig. D16

19. **Replacement of EVF Main Unit**
    Take care not to damage the EVF F.P.C. (in the EVF Case) when removing the EVF Main Unit.
    1) When replacing the EVF Main Unit, remove the 2 Screws (620, 627).
    2) Rest Portion A of the EVF Case on the Eye Sight Lever so that the Eye Sight Lever is under Portion A as shown.
    3) Carefully pull off the EVF Ass'y (EVF Main Unit & Eye Cap) while grasping both sides of the EVF Case to release the Locking Tab (L-3).
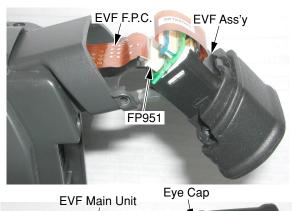


Fig. D17-1

4) Disconnect the EVF F.P.C. from Connector FP951 on the EVF Main Unit.
5) Then, remove the Eye Cap from the EVF Main Unit.
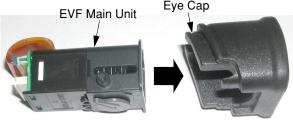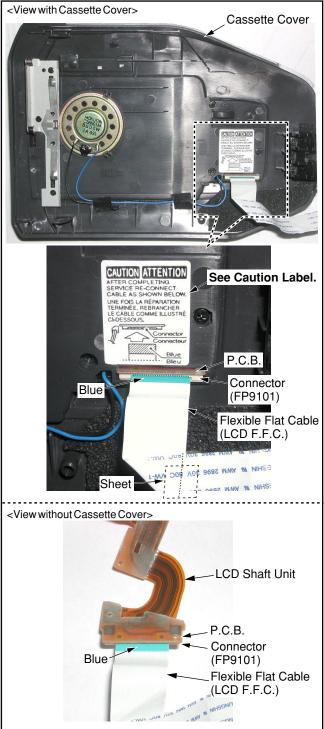


Fig. D17-2

<View with Cassette Cover>

Cassette Cover

**See Caution Label.**

CAUTION | ATTENTION

AFTER COMPLETING
SERVICE RE-CONNECT
CABLE AS SHOWN BELOW.
UNE FOIS LA RÉPARATION
TERMINÉE, REBRANCHER
LE CÂBLE COMME ILLUSTRÉ
CI-DESSOUS.

Connector
Connecteur

Blue
Bleu

P.C.B.

Blue

Connector
(FP9101)

Flexible Flat Cable
(LCD F.F.C.)

Sheet

<View without Cassette Cover>

LCD Shaft Unit

P.C.B.

Connector
(FP9101)

Blue

Flexible Flat Cable
(LCD F.F.C.)

1. **Important safety notice**
   Components identified by the sign ⚠ have special characteristics important for safety. When replacing any of these components. Use only the specified parts.

2. Do not use the part number shown on this drawing for ordering.
   The correct part number and part value is shown in the parts list, and may be slightly different or amended since this drawing was prepared.

3. Use only original replacement parts:
   To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list section of the service manual.

4. Parts different in shape or size may be used.
   However, only interchangeable parts will be supplied as service replacement parts.

5. Test point information
   ○ : Test point with no test pin.

## Schematic Diagram Notes

1. Indication for Zener Voltage of Zener Diodes
   The Zener Voltage of Zener Diodes are indicated as such on Schematic Diagrams.

   > Example:
   >    (6.2V)......Zener Voltage

2. How to identify Connectors
   Each connector is labeled with a Connector No. and Pin No. Indicating what it is connected to,
   in other words, its counter part.
   Use the interconnection schematic diagram to find the connection between associated connectors.
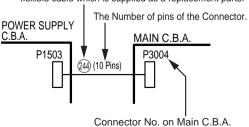
   Example:
   The connections between C.B.A.s are shown below.

   Ref. No. of the connection parts such as lead cable, flexible cable which is supplied as a replacement parts.

   The Number of pins of the Connector.

   POWER SUPPLY C.B.A.   MAIN C.B.A.
   P1503   ⑵⁴⁴ (10 Pins)   P3004

   Connector No. on Main C.B.A.
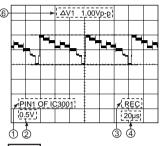
3. Parts marked "PT" are not used in any models included in this service model.

   Example:

   | C6011 | C6014 | R6097 |
   | 100P | PT | PT |
   | PT | | |

## Signal Waveform Note
How to read Signal Waveform



① Connecting Point
② Volts/Div
③ Operation Mode of VCR
④ Time/Div
⑤ Waveform Point on Schematic
⑥ ΔV1:Peak to Peak

## Circuit Board Layout Note
Circuit Board Layout shows components installed for various models.
For proper parts content for the model you are servicing, please refer to the schematic diagram and parts list.

NOTE:
   Circuit Board Layout includes components which are not used.

## Model No. Identification Mark

**COMPARISON CHART OF MODELS & MARKS**

| MODEL | MARK |
| --- | --- |
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |

Note : Refer to item 3 of Schematic Diagram Notes for mark "PT".
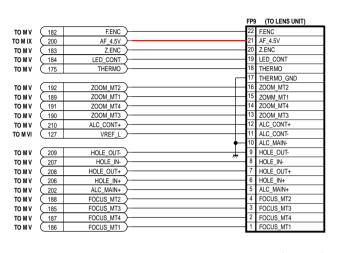
# MAIN I (CONNECTOR) SCHEMATIC DIAGRAM (A,B,C)

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

| COMPARISON CHART OF MODELS & MARKS | |
|---|---|
| MODEL | MARK |
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |
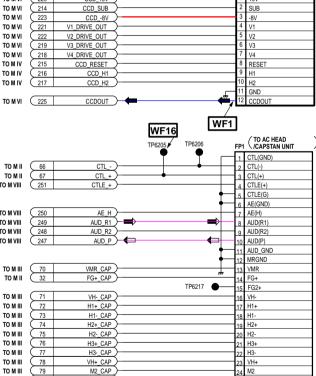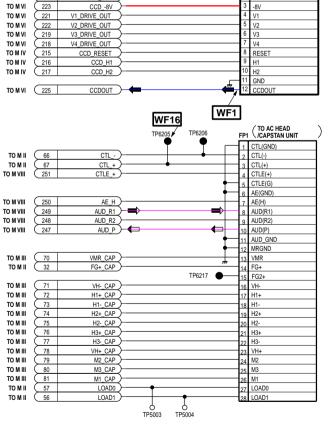
◀ REC VIDEO SIGNAL   ◁ PB VIDEO SIGNAL   ◀ REC AUDIO SIGNAL   ◁ PB AUDIO SIGNAL



LINK TO VOLTAGE CHART

LINK TO SIGNAL WAVEFORM

LSJB8205
MAIN I (CONNECTOR) SCHEMATIC DIAGRAM
VM-L153/PV-L353/PV-L353-K

# MAIN II (SYSTEM CONTROL/SERVO) SCHEMATIC DIAGRAM (A,B,C)

*1 NOTE
TO DEFEAT THE SAFETY FUNCTION, CONNECT A DIODE BETWEEN TP6011 AND TP6012, OR SELECT THE H.
SAFETY DEFEAT IN SERVICE MODE. REFER TO NOTE1 OF "EXTENSION CABLES FOR SERVICE" IN SERVICE
NOTES SECTION FOR MORE INFORMATION.

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

## COMPARISON CHART OF MODELS & MARKS

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |

## IC6001 KEY VOLTAGE CHART (VCR MODE)

| TERMINAL VOLTAGE | OPERATION BUTTON | |
|---|---|---|
| | KEY DATA 2 (PIN 84) | KEY DATA 4 (PIN 81) |
| 3.42~3.78V | --- | --- |
| 2.52~2.88V | FF/SEARCH | --- |
| 1.62~1.98V | REW/SEARCH | AUTO TRACKING |
| 0.72~1.08V | PLAY/STILL | DOWN |
| 0~0.18V | STOP | UP |

## IC6001 KEY VOLTAGE CHART (CAMERA MODE)

| TERMINAL VOLTAGE | OPERATION BUTTON | |
|---|---|---|
| | KEY DATA 2 (PIN 84) | KEY DATA 4 (PIN 81) |
| 3.42~3.78V | LIGHT | --- |
| 2.52~2.88V | EIS | MANUAL FOCUS/SET |
| 1.62~1.98V | FADE | MENU |
| 0.72~1.08V | STILL/STROBE | DOWN/NEAR |
| 0~0.18V | BACKLIGHT | UP/FAR |

## IC6001 KEY VOLTAGE CHART (LCD PANEL MODE) (SW9101,9102)

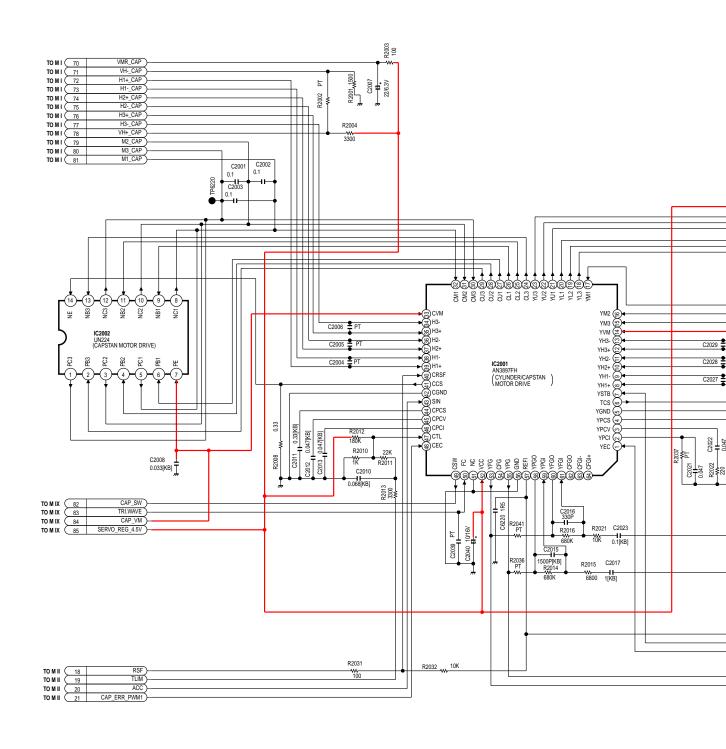| TERMINAL VOLTAGE (Pin 79 of IC6001) | LCD PANEL MODE | |
|---|---|---|
| | NORMAL/REVERSE | OPEN/CLOSE |
| 0V | NORMAL | CLOSE |
| 2.6V | NORMAL | OPEN |
| 1.1V | REVERSE | CLOSE |
| 3.5V | REVERSE | OPEN |

LINK TO SIGNAL WAVEFORM
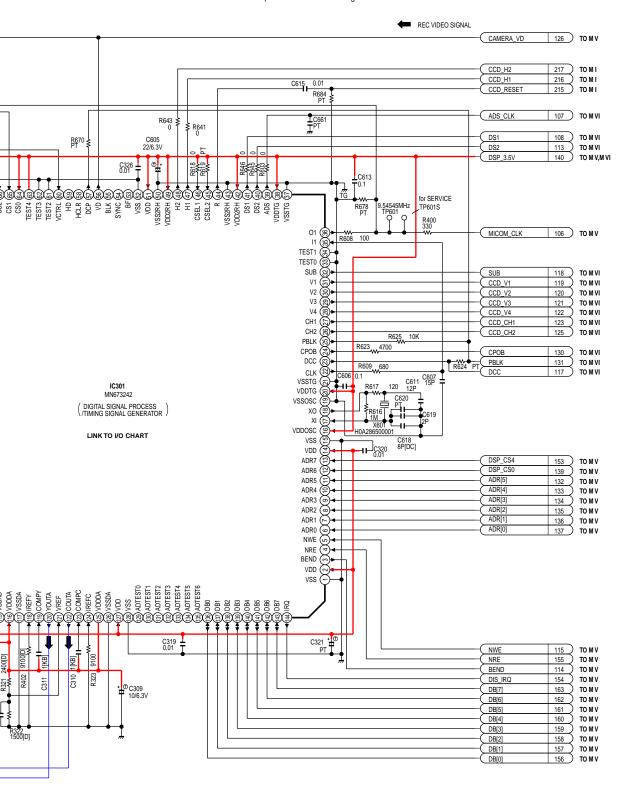
LINK TO VOLTAGE CHART

LSJB8205

MAIN II (SYSTEM CONTROL/SERVO) SCHEMATIC DIAGRAM
VM-L153/PV-L353/PV-L353-K

## I/O CHART OF IC6001

| Pin No. | I/O | Signal Name | Description |
|---|---|---|---|
| 1 | I | POWER | POWER SW |
| 2 | I | TALLY | REC SW ON(L) |
| 3 | I | EJECT | EJECT SW |
| 4 | I | POS1 | MODE SW POSITION 1 |
| 5 | - | ----- | (Not used) |
| 6 | O | POWER | POWER ON(H) |
| 7 | O | LOAD2 | LOADING MOTOR REV(H) |
| 8 | O | LOAD1 | LOADING MOTOR FWD(H) |
| 9 | I | POS2 | MODE SW POSITION 2 |
| 10 | I | KEY_IN1 | KEY DATA 1 |
| 11 | I | NSBT1 | CAM SERIAL CLOCK |
| 12 | I | NSBI1 | CAM SERIAL DATA 0 |
| 13 | O | NSBO1 | CAM SERIAL DATA 1 |
| 14 | O | NSBT0 | SERIAL CLOCK |
| 15 | I | NSBI0 | SERIAL DATA 0 |
| 16 | O | NSBO0 | SERIAL DATA 1 |
| 17 | O | SPK_ON_H | SPEAKER ON(H) |
| 18 | - | ----- | (Not used) |
| 19 | O | CYLON | CYL ON(L) |
| 20 | O | TLIM | CAP TORQUE LIMIT |
| 21 | O | RSF | CAP DIRECTION CTL |
| 22 | O | ACC | FORCED ACCELERATION |
| 23 | O | HSW | HEAD SW |
| 24 | O | VLP | V-LOCK PULSE |
| 25 | I | NRST | RESET(L) |
| 26 | O | FLYE | FLYING ERASE ON(H) |
| 27 | O | VDREC | VIDEO DELAY REC(H) |
| 28 | O | LCD_ON-H | LCD ON(H) |
| 29 | O | ARECCT | AUDIO REC(H)/PB(L) |
| 30 | O | DTCS | IC6005 CS(H) |
| 31 | - | ----- | (Not used) |
| 32 | I | CAM-CS | CAM CS(L) |
| 33 | O | PWM1 | CAP SPEED ERROR |
| 34 | O | PWM0 | CYL SPEED ERROR |
| 35 | O | PWM4 | (Not used) |
| 36 | I | VDD | VDD (+4.5V) |
| 37 | O | OSCO | OSC 1 |
| 38 | I | OSCI | OSC 2 |
| 39 | - | VSS | Ground |
| 40 | I | XI | CLOCK(32KHz) |
| 41 | - | XO | (Not used) |
| 42 | I | SXI | SXI |
| 43 | I | PHOTO | (Not used) |
| 44 | O | RSTOUT | AUDIO RESET(L) |
| 45 | O | EEPROM_CS | IC6008 CS(H) |
| 46 | O | RSTMN67324 | (Not used) |
| 47 | O | CLOCK+B | CLOCK +B |
| 48 | I | VSS | Ground |
| 49 | - | ----- | (Not used) |
| 50 | I | CVIN | VIDEO |
| 51 | I | VDD2 | VDD (+4.5V) |
| 52 | O | AFCC | AFC |
| 53 | I | AFCLPF | AFC |
| 54 | O | LCD_BL_CONT | LCD BACKLIGHT CONTROL |

| Pin No. | I/O | Signal Name | Description |
|---|---|---|---|
| 55 | O | LIGHT | LIGHT ON(H) |
| 56 | O | AMUTE | AUDIO MUTE(H) |
| 57 | O | VCS | D/A LOAD |
| 58 | O | VOB2 | OSD BLANKING DATA |
| 59 | O | VOB1 | OSD BLANKING DATA |
| 60 | O | VOW4 | OSD DATA |
| 61 | O | VOW3 | OSD (DATE/TIME) DATA |
| 62 | - | ----- | (Not used) |
| 63 | - | ----- | (Not used) |
| 64 | I | CDOWN | CASSETTE DOWN(L) |
| 65 | I | YFG | CYL FG |
| 66 | I | YPG | CYL PG |
| 67 | O | FGF | CAP FG |
| 68 | I | AFG | CAP PG |
| 69 | O | VRO | V-REF |
| 70 | I | VRI | V-REF |
| 71 | - | AVSS | Ground |
| 72 | I | CTLA | CTL AMP |
| 73 | I | AVDD | VDD (+4.5V) |
| 74 | I/O | RCTLP | CTL PULSE(+) |
| 75 | I/O | RCTLN | CTL PULSE(-) |
| 76 | O | CO | PB CONTROL PULSE |
| 77 | I | STAB | SAFETY TAB BROKEN(H) |
| 78 | I | LIGHT_SCP | LIGHT SHORT CIRCUIT PROTECT |
| 79 | I | LCDMOD | LCD PANEL MODE |

| TERMINAL VOLTAGE | LCD PANEL MODE | |
|---|---|---|
| | NORMAL/ REVERSE | OPEN/ CLOSE |
| 0V | NORMAL | CLOSE |
| 2.6V | NORMAL | OPEN |
| 1.1V | REVERSE | CLOSE |
| 3.5V | REVERSE | OPEN |

| Pin No. | I/O | Signal Name | Description |
|---|---|---|---|
| 80 | I | SREEL | SUPPLY REEL PULSE |
| 81 | I | KEYAD4 | KEY DATA 4 |
| 82 | I | KEYAD3 | (Not used) |
| 83 | I | BATT/EXT | BATTERY/EXT VOLTAGE DETECT |
| 84 | I | KEYAD2 | KEY DATA 2 |
| 85 | I | BATT | BATTERY UNDERCUT |
| 86 | I | SPHOTO | SUPPLY PHOTO TR(L) |
| 87 | - | ----- | (Not used) |
| 88 | I | DEW | DEW SENSOR |
| 89 | I | ENV | ENV-VOLTAGE |
| 90 | I | TREEL | TAKE UP REEL PULSE |
| 91 | O | SLED | SENSOR LED ON(H) |
| 92 | O | DEW+B | DEW +B |
| 93 | - | ----- | (Not used) |
| 94 | O | KEYSCAN4 | SCAN 4 |
| 95 | O | KEYSCAN3 | SCAN 3 |
| 96 | O | KEYSCAN2 | SCAN 2 |
| 97 | O | KEYSCAN1 | SCAN 1 |
| 98 | O | ROTA | ROTARY SW |
| 99 | - | HAMP | (Not used) |
| 100 | - | DENV | (Not used) |

## I/O CHART OF IC6005

| Pin No. | I/O | Signal Name | Description |
|---|---|---|---|
| 1 | O | TP0 | Clock (32kHz) |
| 2 | I | XIN | X In |
| 3 | O | XOUT | X Out |
| 4 | - | GND | Ground |
| 5 | I | CS | CS (H) |
| 6 | I | SCK | Serial Clock |
| 7 | I/O | SIO | Serial Data1 |
| 8 | I | VDD | VDD (+3.5V) |

## IC6007 LOADING MOTOR DRIVE IC- DETAIL BLOCK DIAGRAM

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.
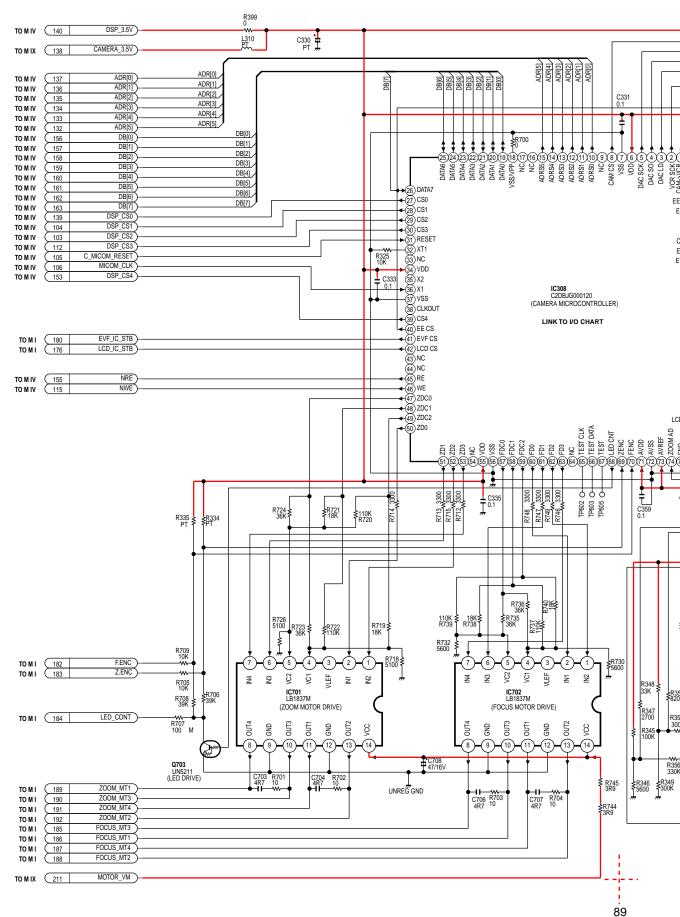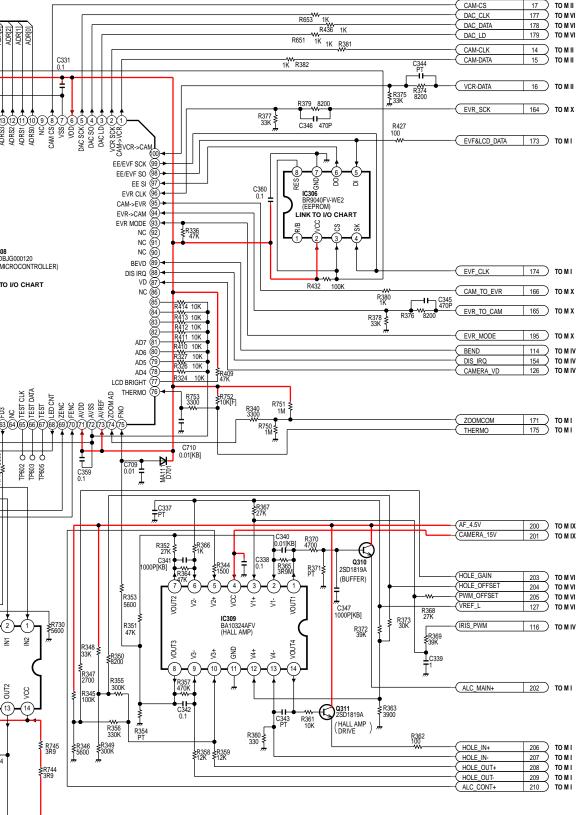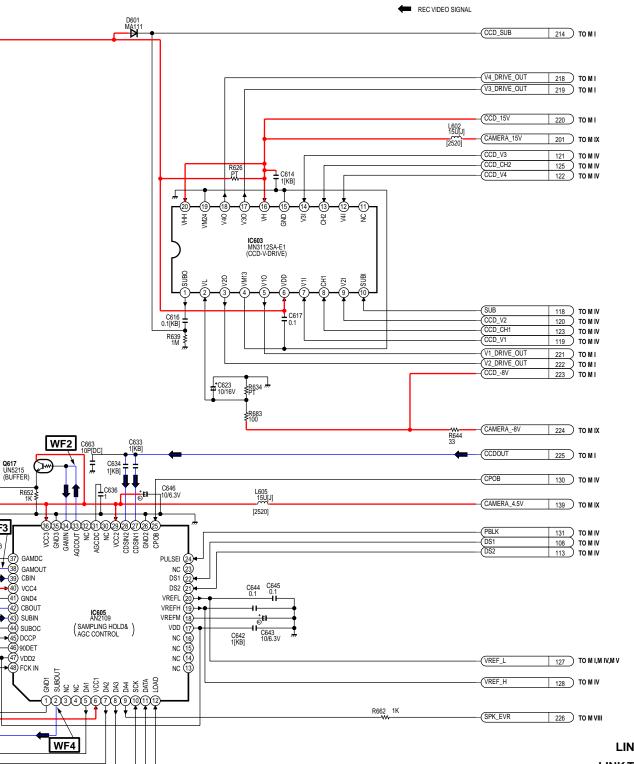
**COMPARISON CHART OF MODELS & MARKS**

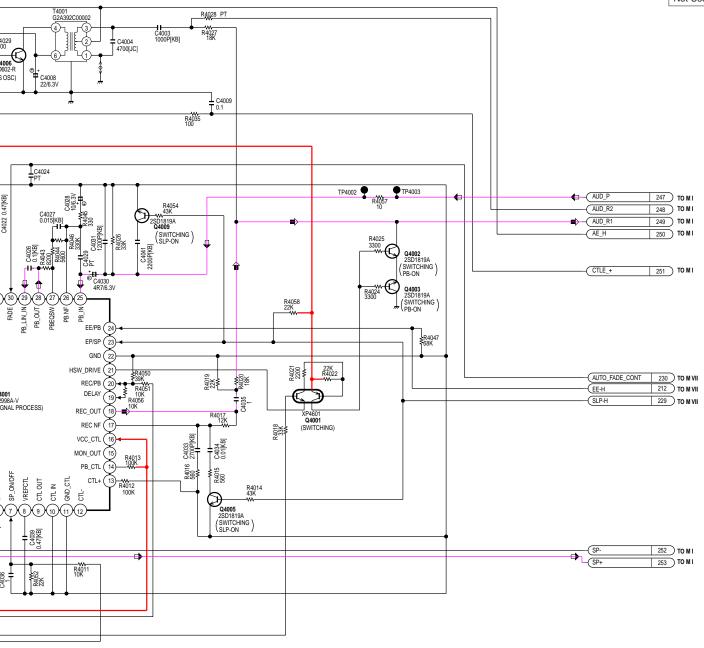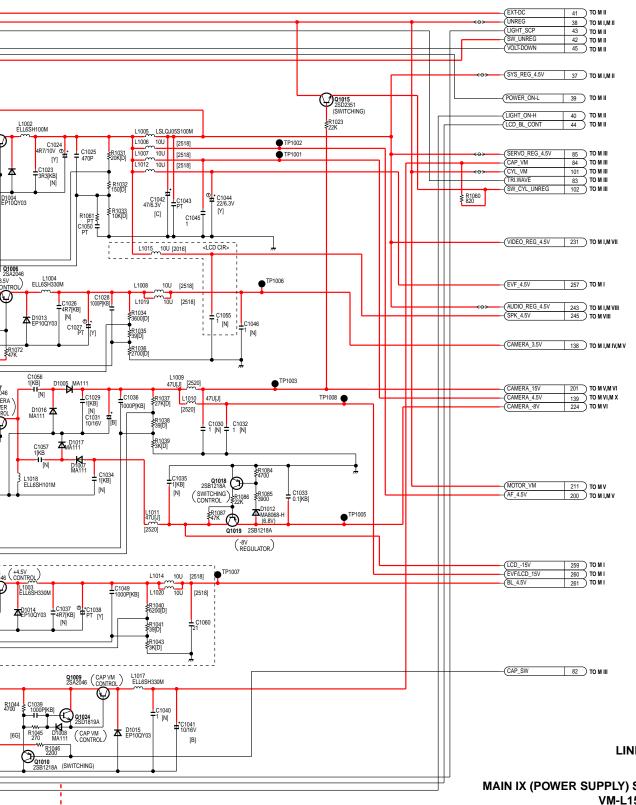| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |



IC2001
AN3897FH
(CYLINDER/CAPSTAN MOTOR DRIVE)

IC2002
UN224
(CAPSTAN MOTOR DRIVE)

IC2003
UN224
(CYLINDER MOTOR DRIVE)

LINK TO VOLTAGE CHART

LSJB8205

MAIN III (CYLINDER/CAPSTAN DRIVE) SCHEMATIC DIAGRAM
VM-L153/PV-L353/PV-L353-K

# IC2001 CYL/CAP MOTOR DRIVE CONTROL IC- DETAIL BLOCK DIAGRAM



# IC2002 CAP MOTOR DRIVE IC- DETAIL BLOCK DIAGRAM



# IC2003 CYL MOTOR DRIVE IC- DETAIL BLOCK DIAGRAM

# MAIN IV (CAMERA I) SCHEMATIC DIAGRAM (A,B,C)

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
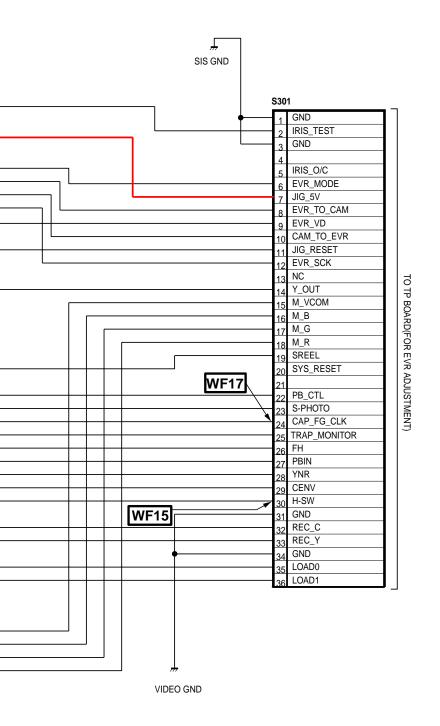Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

### COMPARISON CHART OF MODELS & MARKS

| MODEL | MARK |
|-------|------|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |



IC301
MN673242
( DIGITAL SIGNAL PROCESS /TIMING SIGNAL GENERATOR )

LINK TO I/O CHART

LINK TO VOLTAGE CHART

**LSJB8205**

**MAIN IV (CAMERA I) SCHEMATIC DIAGRAM**
**VM-L153/PV-L353/PV-L353-K**

# I/O CHART OF IC301

| Pin No. | I/O | Signal Name | Description | Pin No. | I/O | Signal Name | Description |
|---|---|---|---|---|---|---|---|
| 1 | - | VSS | Ground | 73 | - | VSS | Ground |
| 2 | I | VDD | VDD (+3.5V) | 74 | I | VDD | VDD (+3.5V) |
| 3 | O | BEND | BLOCK END CONTROL | 75 | - | BLK0 | (Not used) |
| 4 | I | NRE | READ ENABLE | 76 | O | CSEPC | COLOR SEPARATION CONTROL |
| 5 | I | NWE | WRITE ENABLE | 77 | - | FLD | (Not used) |
| 6 | I | ADR0 | ADDRESS 0 | 78 | - | TGTEST | (Not used) |
| 7 | I | ADR1 | ADDRESS 1 | 79 | - | RST | (Not used) |
| 8 | I | ADR2 | ADDRESS 2 | 80 | - | BISTH | (Not used) |
| 9 | I | ADR3 | ADDRESS 3 | 81 | - | NTSEL | (Not used) |
| 10 | I | ADR4 | ADDRESS 4 | 82 | I | DSPCLK1 | CLOCK |
| 11 | I | ADR5 | ADDRESS 5 | 83 | - | TSEL0 | (Not used) |
| 12 | I | ADR6 | DSP CHIP SELECT 0 | 84 | - | TSEL1 | (Not used) |
| 13 | I | ADR7 | DSP CHIP SELECT 4 | 85 | - | TSEL2 | (Not used) |
| 14 | I | VDD | VDD (+3.5V) | 86 | I | UVSELIN | R-Y(L)/B-Y(H) |
| 15 | - | VSS | Ground | 87 | - | VCTRL | (Not used) |
| 16 | I | VDDOSC | VDD (+3.5V) | 88 | - | ZONE0 | (Not used) |
| 17 | I | XI | 28.6MHz OSC | 89 | O | UVSELOUT | R-Y(L)/B-Y(H) |
| 18 | O | XO | 28.6MHz OSC | 90 | - | UVSEL | (Not used) |
| 19 | - | VSSOSC | Ground | 91 | O | SYNC0 | V/H SYNC |
| 20 | I | VDDTG | VDD (+3.5V) | 92 | O | PWM | IRIS PWM CONTROL |
| 21 | - | VSSTG | Ground | 93 | I | VDD | VDD (+3.5V) |
| 22 | O | CLK | CLOCK | 94 | I | CLKA | CLOCK |
| 23 | O | DCC | CLAMP PULSE | 95 | - | VSS | Ground |
| 24 | O | CPOB | OB CLAMP PULSE | 96 | O | VCTRL0 | V CONTROL |
| 25 | O | PBLK | PRE BLANKING PULSE | 97 | - | VEN | (Not used) |
| 26 | O | CH2 | V3 CHARGE PULSE | 98 | - | CP2 | (Not used) |
| 27 | O | CH1 | V1 CHARGE PULSE | 99 | I | CSPC | COLOR SEPARATION CONTROL |
| 28 | O | V4 | V4 PULSE | 100 | - | DSEL | (Not used) |
| 29 | O | V3 | V3 PULSE | 101 | - | MASK | (Not used) |
| 30 | O | V2 | V2 PULSE | 102 | - | MINTEST | (Not used) |
| 31 | O | V1 | V1 PULSE | 103 | I | NPOWDA | (Not used) |
| 32 | O | SUB | SUB CONTROL PULSE | 104 | - | TFMCIN1 | (Not used) |
| 33 | - | TEST0 | (Not used) | 105 | - | TFMCIN2 | (Not used) |
| 34 | - | TEST1 | (Not used) | 106 | - | TFMCIN3 | (Not used) |
| 35 | I | I1 | CLOCK | 107 | - | FD0 | (Not used) |
| 36 | O | O1 | CLOCK | 108 | - | ADTEST7 | (Not used) |
| 37 | - | VSSTG | Ground | 109 | I | VDDAD | VDD (+3.5V) |
| 38 | I | VDDTG | VDD (+3.5V) | 110 | - | VSSAD | Ground |
| 39 | O | ADS | ANALOG SAMPLING PULSE | 111 | I | REFBTM | V-REF(L) |
| 40 | O | DS2 | DOUBLE SAMPLING PULSE 2 | 112 | I | VINA | A/D SIGNAL |
| 41 | O | DS1 | DOUBLE SAMPLING PULSE 1 | 113 | I | REFTOP | V-REF(H) |
| 42 | I | VDD2RH | VDD (+3.5V) | 114 | I | VDDAD | VDD (+3.5V) |
| 43 | - | VSS2RH | Ground | 115 | - | VSSAD | Ground |
| 44 | O | R | RESET PULSE | 116 | I | VDDDA | VDD (+3.5V) |
| 45 | - | CSEL2 | (Not used) | 117 | - | VSSDA | Ground |
| 46 | - | CSEL1 | (Not used) | 118 | - | IREFY | LUMINANCE D/A I-REF |
| 47 | O | H1 | H1 PULSE | 119 | - | COMPY | LUMINANCE D/A CONTROL |
| 48 | O | H2 | H2 PULSE | 120 | O | YOUTA | LUMINANCE |
| 49 | I | VDD2RH | VDD (+3.5V) | 121 | I | VREF | V-REF |
| 50 | - | VSS2RH | Ground | 122 | O | COUTA | CHROMINANCE |
| 51 | I | VDD | VDD (+3.5V) | 123 | - | COMPC | CHROMINANCE D/A CONTROL |
| 52 | - | VSS | Ground | 124 | - | IREFC | CHROMINANCE D/A I-REF |
| 53 | - | BF | (Not used) | 125 | I | VDDDA | VDD (+3.5V) |
| 54 | - | SYNC | (Not used) | 126 | - | VSSDA | Ground |
| 55 | - | BLK | (Not used) | 127 | I | VDD | VDD (+3.5V) |
| 56 | O | VD | V SYNC | 128 | - | VSS | Ground |
| 57 | O | DCP | CLAMP PULSE | 129 | - | ADTEST0 | (Not used) |
| 58 | - | HCLR | (Not used) | 130 | - | ADTEST1 | (Not used) |
| 59 | - | HD | (Not used) | 131 | - | ADTEST2 | (Not used) |
| 60 | I | VCTRL | V CONTROL | 132 | - | ADTEST3 | (Not used) |
| 61 | - | TEST2 | (Not used) | 133 | - | ADTEST4 | (Not used) |
| 62 | - | TEST3 | (Not used) | 134 | - | ADTEST5 | (Not used) |
| 63 | - | TEST4 | (Not used) | 135 | - | ADTEST6 | (Not used) |
| 64 | I | CS0 | (Not used) | 136 | I/O | DB0 | DATA 0 |
| 65 | I | CS1 | DSP CHIP SELECT 1 | 137 | I/O | DB1 | DATA 1 |
| 66 | I | CS2 | DSP CHIP SELECT 2 | 138 | I/O | DB2 | DATA 2 |
| 67 | I | CS3 | DSP CHIP SELECT 3 | 139 | I/O | DB3 | DATA 3 |
| 68 | - | BTEST10 | (Not used) | 140 | I/O | DB4 | DATA 4 |
| 69 | - | BTEST11 | (Not used) | 141 | I/O | DB5 | DATA 5 |
| 70 | - | DCK | (Not used) | 142 | I/O | DB6 | DATA 6 |
| 71 | - | BFO | (Not used) | 143 | I/O | DB7 | DATA 7 |
| 72 | - | CP20 | (Not used) | 144 | O | IRQ | DIS INTERRUPT REQUEST |

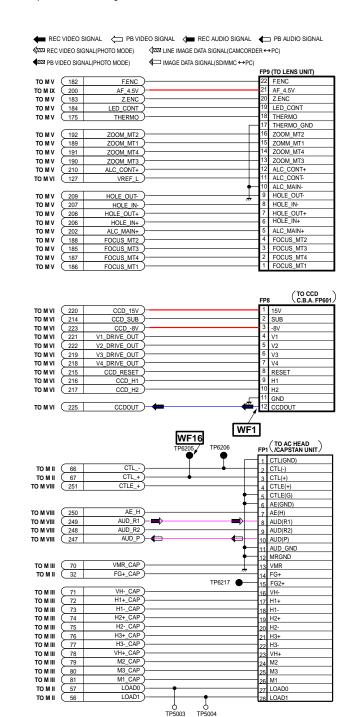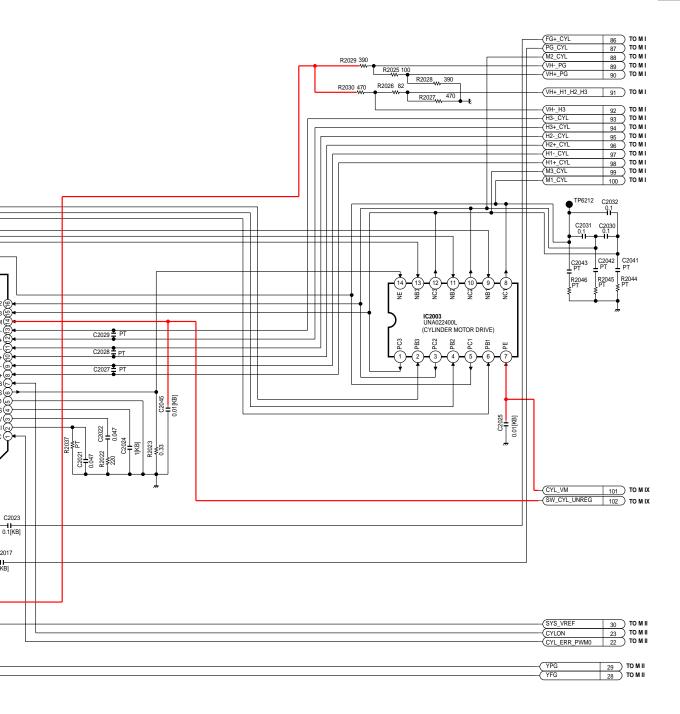# MAIN V (CAMERA II/LENS DRIVE) SCHEMATIC DIAGRAM (A,B,C)

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
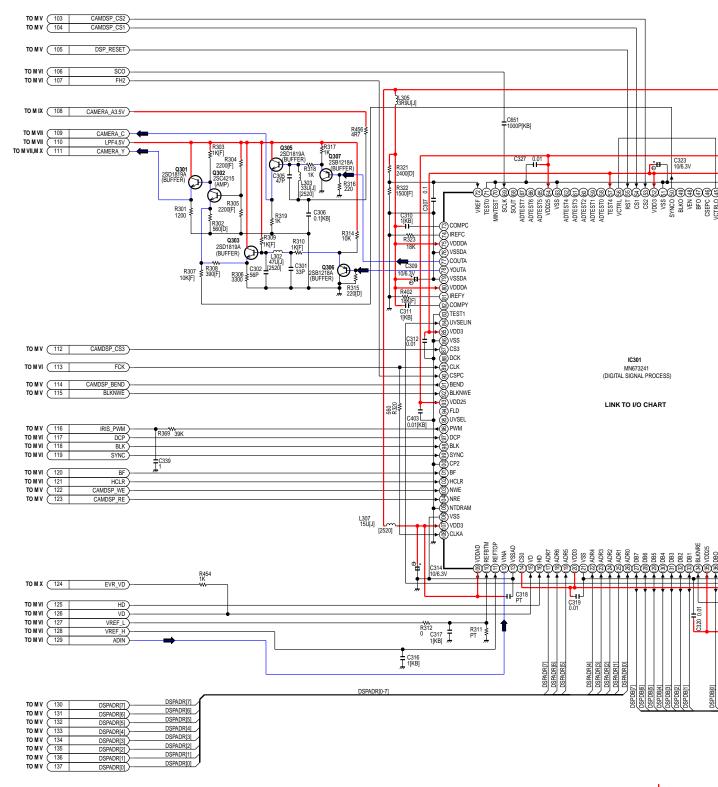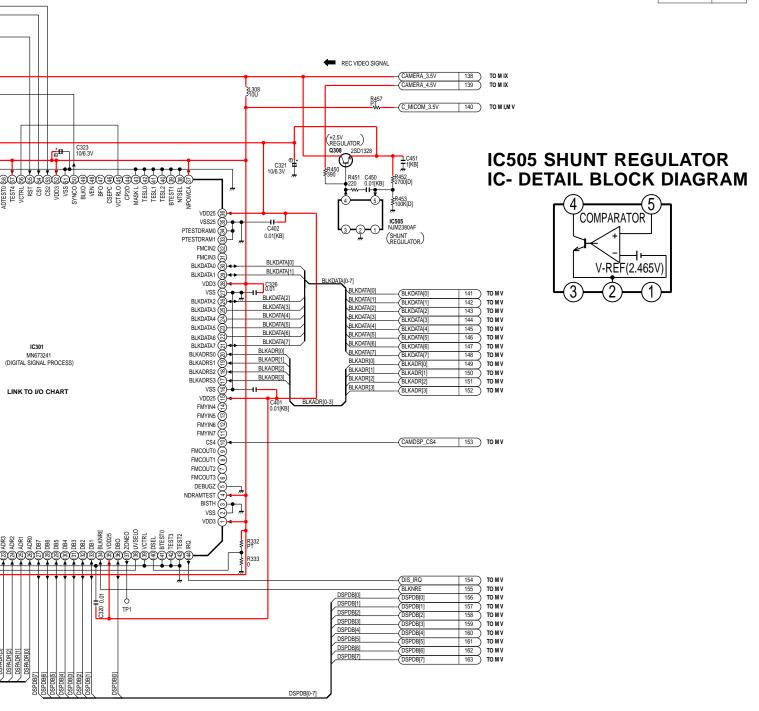REFER TO BEGINNING OF SCHEMATIC SECTION.

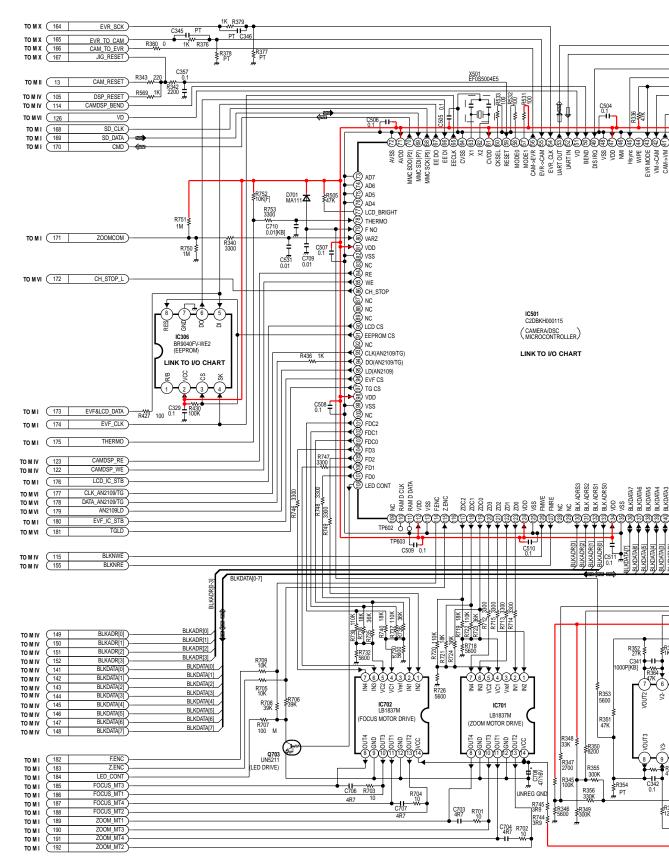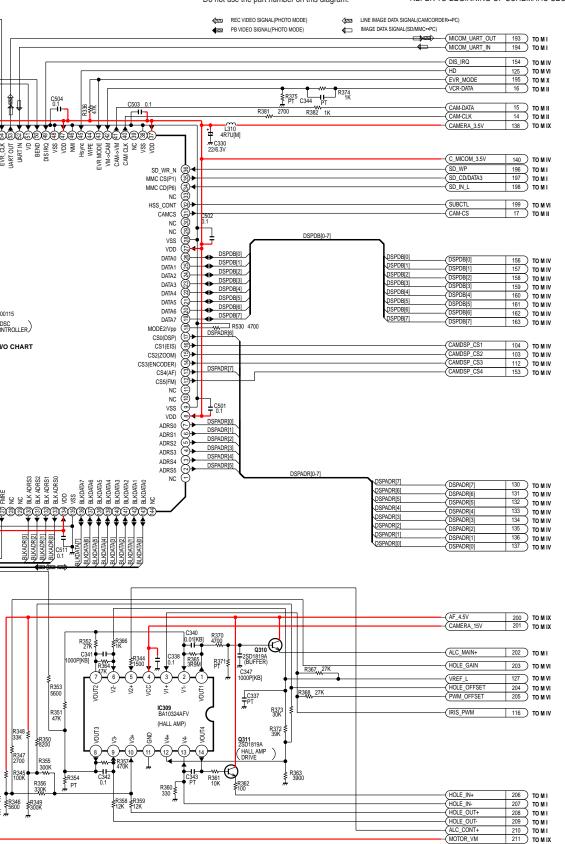COMPARISON CHART
OF MODELS & MARKS

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |



LINK TO VOLTAGE CHART

LSJB8205

MAIN V (CAMERA II/LENS DRIVE) SCHEMATIC DIAGRAM

VM-L153/PV-L353/PV-L353-K

## I/O CHART OF IC308

| Pin No. | I/O | Signal Name | Description |
|---|---|---|---|
| 1 | O | CAM->VCR | CAM SERIAL DATA 0 |
| 2 | I | VCR SLK | CAM SERIAL CLOCK |
| 3 | O | DAC LD | DAC LOAD |
| 4 | O | DAC SO | DAC SERIAL DATA |
| 5 | O | DAC SCK | DAC SERIAL CLOCK |
| 6 | I | VDD | VDD (+3.5V) |
| 7 | - | VSS | Ground |
| 8 | O | CAM CS | CAM CS(L) |
| 9 | - | NC | (Not used) |
| 10 | O | ADRS0 | ADDRESS 0 |
| 11 | O | ADRS1 | ADDRESS 1 |
| 12 | O | ADRS2 | ADDRESS 2 |
| 13 | O | ADRS3 | ADDRESS 3 |
| 14 | O | ADRS4 | ADDRESS 4 |
| 15 | O | ADRS5 | ADDRESS 5 |
| 16 | - | NC | (Not used) |
| 17 | - | NC | (Not used) |
| 18 | - | VSS/VPP | Ground |
| 19 | I/O | DATA0 | DATA 0 |
| 20 | I/O | DATA1 | DATA 1 |
| 21 | I/O | DATA2 | DATA 2 |
| 22 | I/O | DATA3 | DATA 3 |
| 23 | I/O | DATA4 | DATA 4 |
| 24 | I/O | DATA5 | DATA 5 |
| 25 | I/O | DATA6 | DATA 6 |
| 26 | I/O | DATA7 | DATA 7 |
| 27 | O | CS0 | CHIP SELECT 0 |
| 28 | O | CS1 | CHIP SELECT 1 |
| 29 | O | CS2 | CHIP SELECT 2 |
| 30 | O | CS3 | CHIP SELECT 3 |
| 31 | I | RESET | RESET(L) |
| 32 | - | XT1 | (Not used) |
| 33 | - | NC | (Not used) |
| 34 | I | VDD | VDD (+3.5V) |
| 35 | - | X2 | (Not used) |
| 36 | I | X1 | 14.3 MHz CLOCK |
| 37 | - | VSS | Ground |
| 38 | - | CLKOUT | (Not used) |
| 39 | O | CS4 | CHIP SELECT 4 |
| 40 | O | EE CS | EEPROM CS(L) |
| 41 | O | EVF CS | EVF LOAD |
| 42 | O | LCD CS | LCD LOAD |
| 43 | - | NC | (Not used) |
| 44 | - | NC | (Not used) |
| 45 | O | RE | READ ENABLE |
| 46 | O | WE | WRITE ENABLE |
| 47 | O | ZDC0 | ZOOM MOTOR DRIVE CONTROL 0 |
| 48 | O | ZDC1 | ZOOM MOTOR DRIVE CONTROL 1 |
| 49 | O | ZDC2 | ZOOM MOTOR DRIVE CONTROL 2 |
| 50 | O | ZD0 | ZOOM MOTOR DRIVE 0 |

| Pin No. | I/O | Signal Name | Description |
|---|---|---|---|
| 51 | O | ZD1 | ZOOM MOTOR DRIVE 1 |
| 52 | O | ZD2 | ZOOM MOTOR DRIVE 2 |
| 53 | O | ZD3 | ZOOM MOTOR DRIVE 3 |
| 54 | - | NC | (Not used) |
| 55 | I | VDD | VDD (+3.5V) |
| 56 | - | VSS | Ground |
| 57 | O | FDC0 | FOCUS MOTOR DRIVE CONTROL 0 |
| 58 | O | FDC1 | FOCUS MOTOR DRIVE CONTROL 1 |
| 59 | O | FDC2 | FOCUS MOTOR DRIVE CONTROL 2 |
| 60 | O | FD0 | FOCUS MOTOR DRIVE 0 |
| 61 | O | FD1 | FOCUS MOTOR DRIVE 1 |
| 62 | O | FD2 | FOCUS MOTOR DRIVE 2 |
| 63 | O | FD3 | FOCUS MOTOR DRIVE 3 |
| 64 | - | NC | (Not used) |
| 65 | - | TEST CLK | (Not used) |
| 66 | - | TEST DATA | (Not used) |
| 67 | - | TEST | (Not used) |
| 68 | O | LED CNT | LED CONTROL |
| 69 | I | Z ENC | ZOOM ENCODER |
| 70 | I | F ENC | FOCUS ENCODER |
| 71 | I | AVDD | VDD (+3.5V) |
| 72 | - | AVSS | Ground |
| 73 | I | AVREF | V-REF |
| 74 | I | ZOOM AD | ZOOM SWITCH DET |
| 75 | I | FNO | F NUMBER SIGNAL |
| 76 | I | THERMO | THERMO (LENS TEMPERATURE DET.) |
| 77 | - | LCD BRIGHT | (Not used) |
| 78 | - | AD4 | (Not used) |
| 79 | - | AD5 | (Not used) |
| 80 | - | AD6 | (Not used) |
| 81 | - | AD7 | (Not used) |
| 82 | - | ----- | (Not used) |
| 83 | - | ----- | (Not used) |
| 84 | - | ----- | (Not used) |
| 85 | - | ----- | (Not used) |
| 86 | - | NC | (Not used) |
| 87 | I | VD | V-SYNC |
| 88 | I | DIS IRQ | DIS IRQ |
| 89 | I | BEVD | BLOCK END CONTROL |
| 90 | - | NC | (Not used) |
| 91 | - | NC | (Not used) |
| 92 | - | NC | (Not used) |
| 93 | I | EVR MODE | EVR MODE |
| 94 | I | EVR->CAM | EVR SERIAL DATA 1 |
| 95 | O | CAM->EVR | EVR SERIAL DATA 0 |
| 96 | I | EVR CLK | EVR SERIAL CLOCK |
| 97 | I | EE SI | SERIAL DATA 1 |
| 98 | O | EE/EVF S0 | SERIAL DATA 0 |
| 99 | O | EE/EVF SCK | SERIAL CLOCK |
| 100 | I | VCR->CAM | CAM SERIAL DATA 1 |
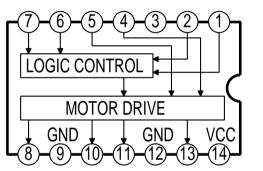
## I/O CHART OF IC306

| Pin No. | I/O | Signal Name | Description |
|---|---|---|---|
| 1 | - | R/B | (Not Used) |
| 2 | I | VCC | VDD (+3.5V) |
| 3 | I | CS | EEPROM CS(L) |
| 4 | I | SK | Serial Clock |
| 5 | I | DI | Serial Data 0 |
| 6 | O | DO | Serial Data 1 |
| 7 | - | GND | Ground |
| 8 | I | RES | Reset (L) |

## IC309 HALL/IRIS AMP IC- DETAIL BLOCK DIAGRAM

## IC701 FOCUS MOTOR DRIVE IC- DETAIL BLOCK DIAGRAM

LOGIC CONTROL
MOTOR DRIVE
GND GND VCC

## IC702 ZOOM MOTOR DRIVE IC- DETAIL BLOCK DIAGRAM

LOGIC CONTROL
MOTOR DRIVE
GND GND VCC

I/O CHART OF IC308
I/O CHART OF IC306
IC309 DETAIL BLOCK DIAGRAM
/IC701 DETAIL BLOCK DIAGRAM
/IC702 DETAIL BLOCK DIAGRAM
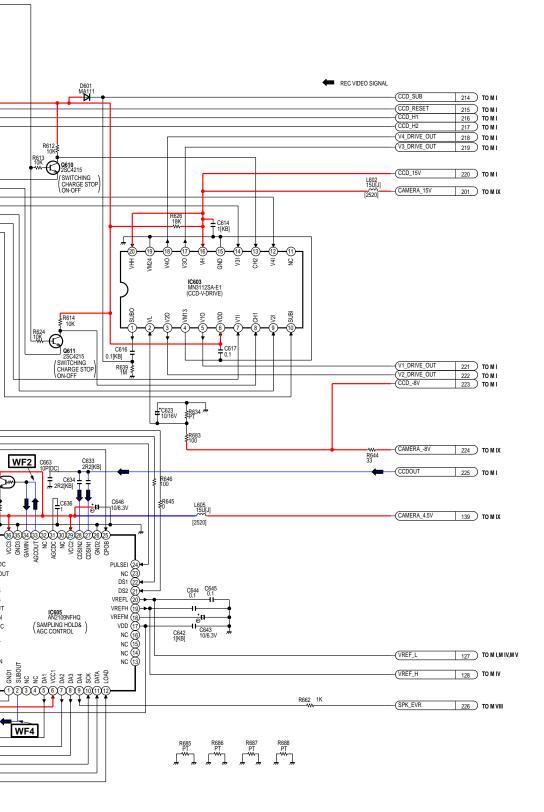VM-L153/PV-L353/PV-L353-K
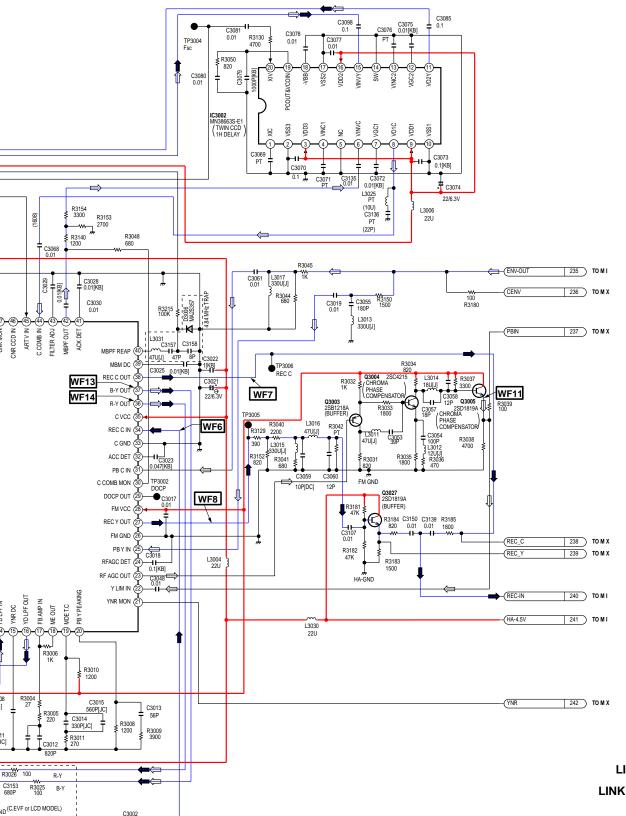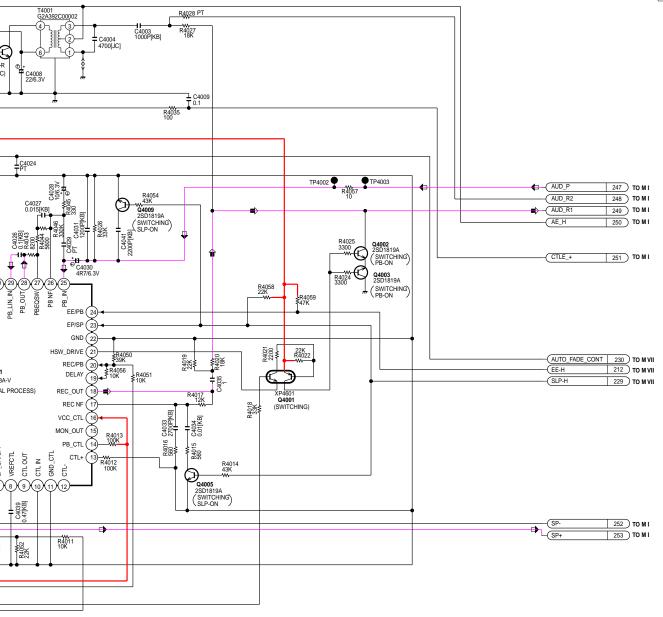
# MAIN VI (CCD DRIVE) SCHEMATIC DIAGRAM (A,B,C)

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.
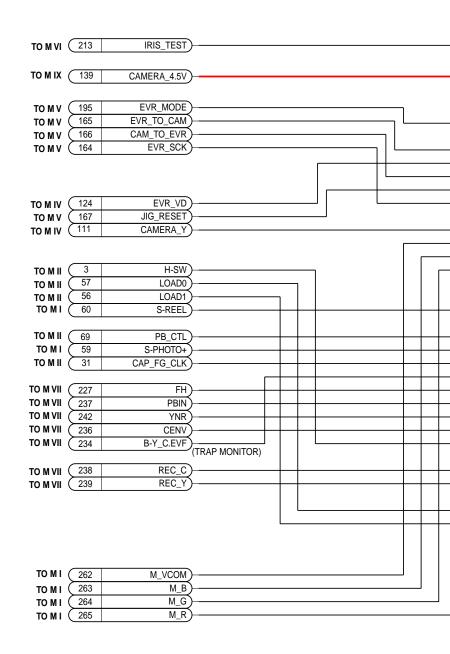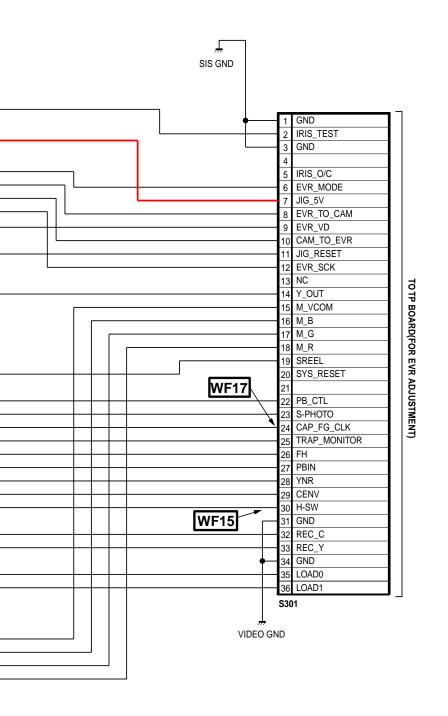
**COMPARISON CHART OF MODELS & MARKS**

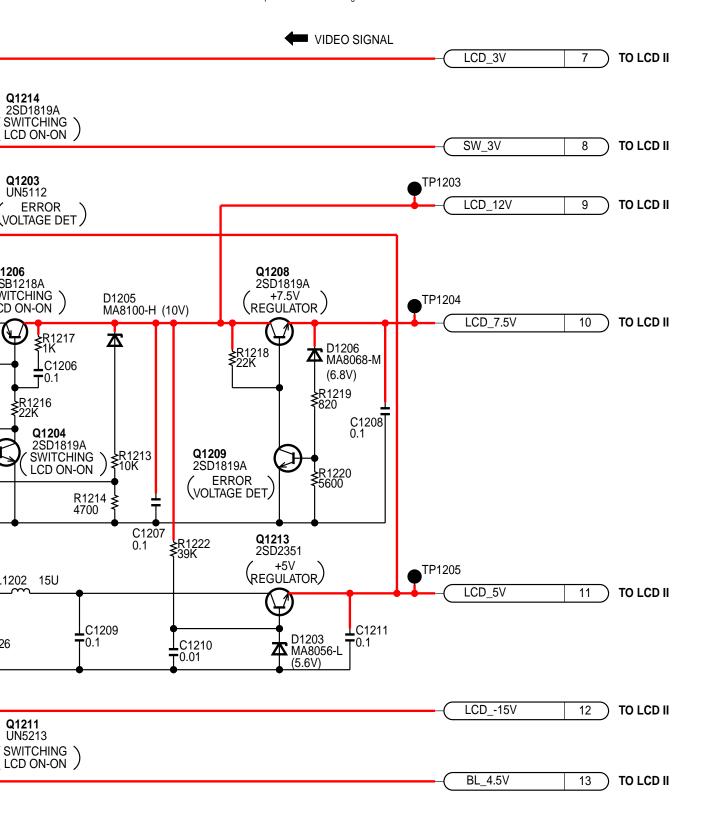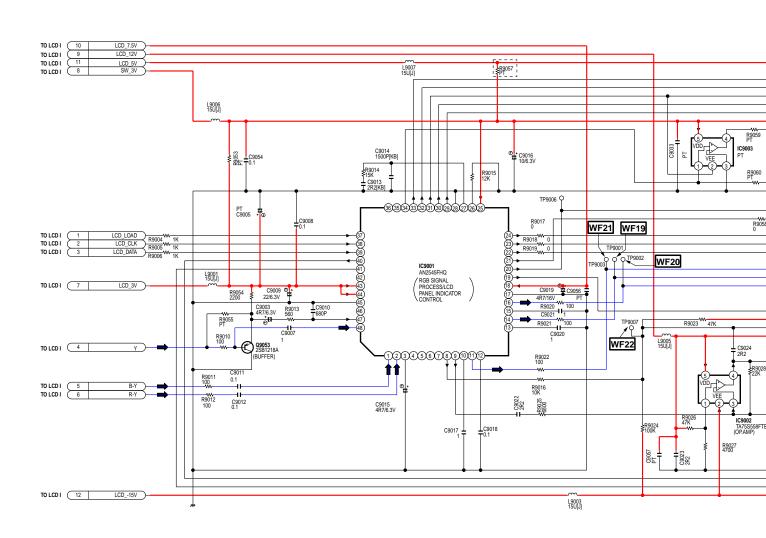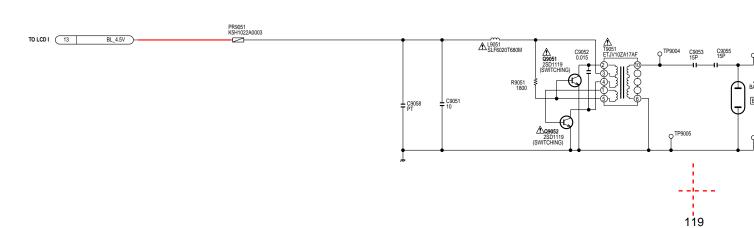| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |

REC VIDEO SIGNAL

TO M IV  140  DSP_3.5V

D601 MA111

CCD_SUB  214  TO M I

V4_DRIVE_OUT  218  TO M I
V3_DRIVE_OUT  219  TO M I

L602 15U[J] [2520]

CCD_15V  220  TO M I
CAMERA_15V  201  TO M IX

CCD_V3  121  TO M IV
CCD_CH2  125  TO M IV
CCD_V4  122  TO M IV

R626 PT
C614 1[KB]

**IC603 MN3112SA-E1 (CCD-V-DRIVE)**

Pins (top): 20 VHH, 19 VM24, 18 V4O, 17 V3O, 16 VH, 15 GND, 14 V3I, 13 CH2, 12 V4I, 11 NC

Pins (bottom): 1 SUBO, 2 VL, 3 V2O, 4 VM13, 5 V1O, 6 VDD, 7 V1I, 8 CH1, 9 V2I, 10 SUBI

C616 0.1[KB]
C617 0.1
R639 1M

SUB  118  TO M IV
CCD_V2  120  TO M IV
CCD_CH1  123  TO M IV
CCD_V1  119  TO M IV

V1_DRIVE_OUT  221  TO M I
V2_DRIVE_OUT  222  TO M I
CCD_-8V  223  TO M I

C623 10/16V
R634 PT
R683 100

TO M IV  117  DCC

CAMERA_-8V  224  TO M IX
R644 33

WF2
C663 10P[DC]
C633 1[KB]

CCDOUT  225  TO M I

Q617 UN5215 (BUFFER)

C634 1[KB]
C646 10/6.3V

CPOB  130  TO M IV

TO M X  213  IRIS_TEST

R652 1K
C636 1

L605 15U[J] [2520]

CAMERA_4.5V  139  TO M IX

WF3

Pins (top): 36 VCC3, 35 GND3, 34 GAMIN, 33 AGCOUT, 32 NC, 31 NC, 30 AGCDC, 29 VCC2, 28 CDSIN2, 27 CDSIN1, 26 GND2, 25 CPOB

PBLK  131  TO M IV
DS1  108  TO M IV
DS2  113  TO M IV

C638 0.1
C647 1
C652 PT

37 GAMDC
38 GAMOUT
39 CBIN
40 VCC4
41 GND4
42 CBOUT
43 SUBIN
44 SUBOC
45 DCCP
46 90DET
47 VDD2
48 FCK IN

**IC605 AN2109 (SAMPLING HOLD& AGC CONTROL)**

24 PULSEI
23 NC
22 DS1
21 DS2
20 VREFL
19 VREFH
18 VREFM
17 VDD
16 NC
15 NC
14 NC
13 NC

C644 0.1
C645 0.1
C642 1[KB]
C643 10/6.3V

R659 5600
R658 PT
C639 1

C640 0.1
C641 0.1

TO M IV  107  ADS_CLK

Pins (bottom): 1 GND1, 2 SUBOUT, 3 NC, 4 VCC1, 5 DA1, 6 DA2, 7 DA3, 8 DA4, 9 SCK, 10 DATA, 11 LOAD, 12 PULSEI?

VREF_L  127  TO M I,M IV,M V
VREF_H  128  TO M IV

R662  1K
SPK_EVR  226  TO M VIII

TO M IV  129  ADSIG

WF4

TO M V  203  HOLE_GAIN
TO M V  204  HOLE_OFFSET
TO M V  205  PWM_OFFSET
TO M V  177  DAC_CLK
TO M V  178  DAC_DATA
TO M V  179  DAC_LD

**LINK TO VOLTAGE CHART**

**LINK TO SIGNAL WAVEFORM**

**LSJB8205**
**MAIN VI (CCD DRIVE) SCHEMATIC DIAGRAM**
**VM-L153/PV-L353/PV-L353-K**

# IC603 CCD V DRIVE
## IC- DETAIL BLOCK DIAGRAM



# IC605 SAMPLING HOLD / AGC CONTROL
## IC- DETAIL BLOCK DIAGRAM

# MAIN VII (VIDEO) SCHEMATIC DIAGRAM (A,B,C)

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE: FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

## COMPARISON CHART OF MODELS & MARKS

| MODEL | MARK |
|-------|------|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |

LINK TO VOLTAGE CHART

LINK TO SIGNAL WAVEFORM

LSJB8205
MAIN VII (VIDEO) SCHEMATIC DIAGRAM
VM-L153/PV-L353/PV-L353-K

# IC3001 VIDEO/AUDIO PROCESS IC- DETAIL BLOCK DIAGRAM

# IC3002 TWIN CCD IH DELAY IC- DETAIL BLOCK DIAGRAM

REC VIDEO SIGNAL        PB VIDEO SIGNAL

# MAIN VIII (AUDIO) SCHEMATIC DIAGRAM (A,B,C)

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

**COMPARISON CHART OF MODELS & MARKS**

| MODEL | MARK |
| --- | --- |
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |

REC AUDIO SIGNAL   PB AUDIO SIGNAL

IC4001
AN12998A-V
(AUDIO SIGNAL PROCESS)

LINK TO VOLTAGE CHART

LSJB8205
MAIN VIII (AUDIO) SCHEMATIC DIAGRAM
VM-L153/PV-L353/PV-L353-K

# IC4001 AUDIO SIGNAL PROCESS IC- DETAIL BLOCK DIAGRAM

◀ REC AUDIO SIGNAL   ◁ PB AUDIO SIGNAL

# MAIN IX (POWER SUPPLY) SCHEMATIC DIAGRAM (A,B,C)

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE 1.5A 24/32V FUSE.
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES
D' INCENDIE N' UTILISERQUE DES FUSIBLE DE MÊME
TYPE 1.5A 24/32V

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE 2A 24/32V FUSE.
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES
D' INCENDIE N' UTILISERQUE DES FUSIBLE DE MÊME
TYPE 2A 24/32V

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,
USE ONLY THE SPECIFIED PARTS.

COMPARISON CHART
OF MODELS & MARKS

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |

LINK TO VOLTAGE CHART

LSJB8205
MAIN IX (POWER SUPPLY) SCHEMATIC DIAGRAM
VM-L153/PV-L353/PV-L353-K

# IC1001 PWM CONTROL IC- DETAIL BLOCK DIAGRAM

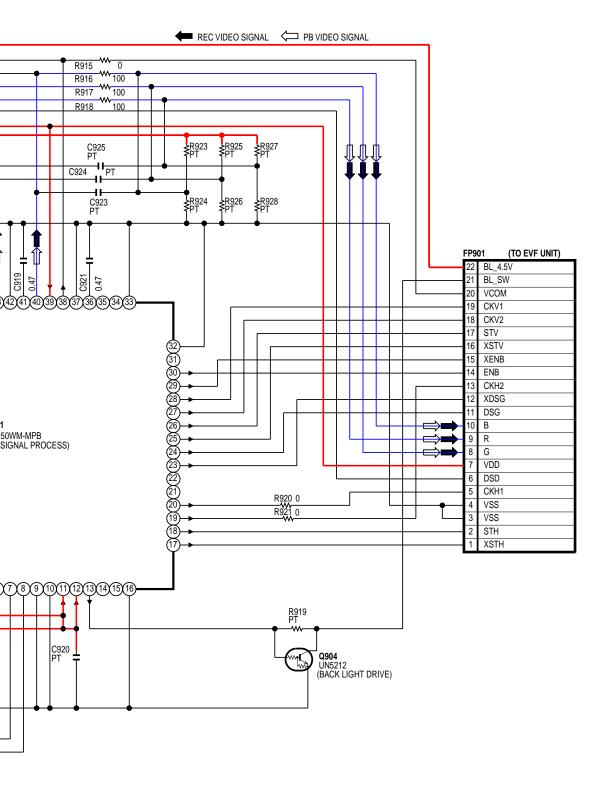# MAIN X (EVR CONNECTOR) SCHEMATIC DIAGRAM (A,B,C)

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

SIS GND

**S301**

TO TP BOARD(FOR EVR ADJUSTMENT)

| Pin | Signal |
|---|---|
| 1 | GND |
| 2 | IRIS_TEST |
| 3 | GND |
| 4 | |
| 5 | IRIS_O/C |
| 6 | EVR_MODE |
| 7 | JIG_5V |
| 8 | EVR_TO_CAM |
| 9 | EVR_VD |
| 10 | CAM_TO_EVR |
| 11 | JIG_RESET |
| 12 | EVR_SCK |
| 13 | NC |
| 14 | Y_OUT |
| 15 | M_VCOM |
| 16 | M_B |
| 17 | M_G |
| 18 | M_R |
| 19 | SREEL |
| 20 | SYS_RESET |
| 21 | |
| 22 | PB_CTL |
| 23 | S-PHOTO |
| 24 | CAP_FG_CLK |
| 25 | TRAP_MONITOR |
| 26 | FH |
| 27 | PBIN |
| 28 | YNR |
| 29 | CENV |
| 30 | H-SW |
| 31 | GND |
| 32 | REC_C |
| 33 | REC_Y |
| 34 | GND |
| 35 | LOAD0 |
| 36 | LOAD1 |

TO M VI  213  IRIS_TEST
TO M IX  139  CAMERA_4.5V
TO M V  195  EVR_MODE
TO M V  165  EVR_TO_CAM
TO M V  166  CAM_TO_EVR
TO M V  164  EVR_SCK
TO M IV  124  EVR_VD
TO M IV  167  JIG_RESET
TO M IV  111  CAMERA_Y
TO M II  3  H-SW
TO M II  57  LOAD0
TO M II  56  LOAD1
TO M I  60  S-REEL
TO M II  69  PB_CTL
TO M I  59  S-PHOTO+
TO M II  31  CAP_FG_CLK
TO M VII  227  FH
TO M VII  237  PBIN
TO M VII  242  YNR
TO M VII  236  CENV
TO M VII  234  B-Y_C.EVF
(TRAP MONITOR)
TO M VII  238  REC_C
TO M VII  239  REC_Y

WF17
WF15

TO M I  262  M_VCOM
TO M I  263  M_B
TO M I  264  M_G
TO M I  265  M_R

VIDEO GND

# MAIN I (CONNECTOR) SCHEMATIC DIAGRAM (D)

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
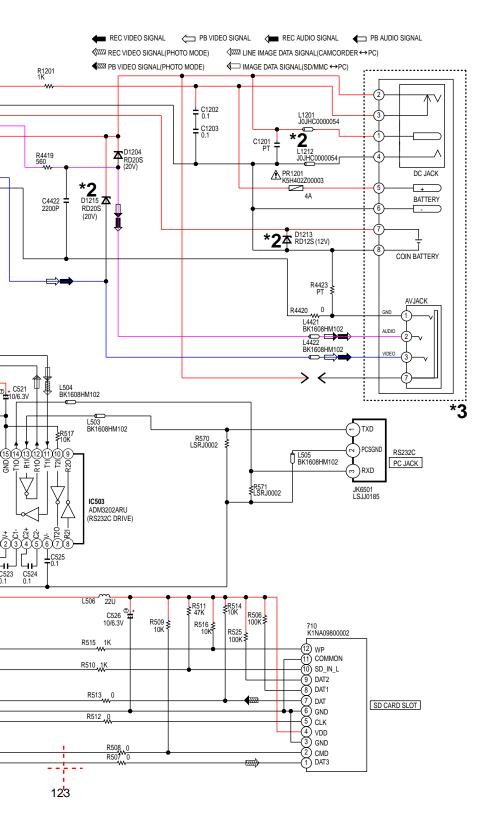Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

**COMPARISON CHART OF MODELS & MARKS**

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |

REC VIDEO SIGNAL    PB VIDEO SIGNAL    REC AUDIO SIGNAL    PB AUDIO SIGNAL
REC VIDEO SIGNAL(PHOTO MODE)    LINE IMAGE DATA SIGNAL(CAMCORDER ↔ PC)
PB VIDEO SIGNAL(PHOTO MODE)    IMAGE DATA SIGNAL(SD/MMC ↔ PC)

LINK TO VOLTAGE CHART

LINK TO SIGNAL WAVEFORM

LSJB8204
MAIN I (CONNECTOR) SCHEMATIC DIAGRAM
PV-L453

# MAIN II (SYSTEM CONTROL/SERVO) SCHEMATIC DIAGRAM (D)

**\*1 NOTE**
TO DEFEAT THE SAFETY FUNCTION, CONNECT A DIODE BETWEEN TP6011 AND TP6012, OR SELECT THE H. SAFETY DEFEAT IN SERVICE MODE. REFER TO NOTE1 OF "EXTENSION CABLES FOR SERVICE" IN SERVICE NOTES SECTION FOR MORE INFORMATION.
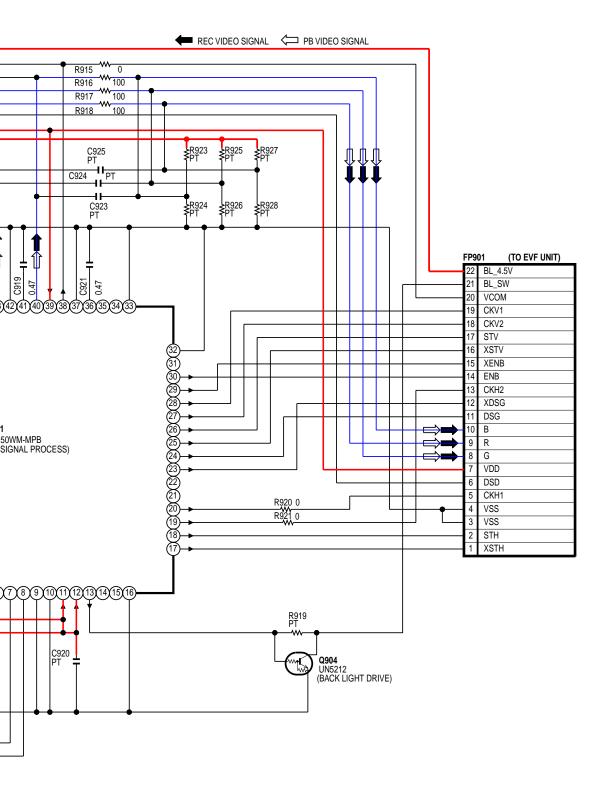
NOTE: For placing a purchase order of the parts, be sure to use the part number listed in the parts list. Do not use the part number on this diagram.

NOTE: FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

## COMPARISON CHART OF MODELS & MARKS

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |

## IC6001 KEY VOLTAGE CHART (VCR MODE)

| TERMINAL VOLTAGE | KEY DATA 2 (PIN 84) | KEY DATA 4 (PIN 81) |
|---|---|---|
| 3.42–3.78V | FF/ SEARCH | AUTO TRACKING |
| 2.52–2.88V | REW/ SEARCH | MENU |
| 1.62–1.98V | PLAY/STILL | DOWN |
| 0.72–1.08V | STOP | UP |
| 0–0.18V | | |

## IC6001 KEY VOLTAGE CHART (CAMERA EIS MODE)

| TERMINAL VOLTAGE | KEY DATA 2 (PIN 84) | KEY DATA 4 (PIN 81) |
|---|---|---|
| 3.42–3.78V | LIGHT | --- |
| 2.52–2.88V | EIS | MANUAL FOCUS/ SET |
| 1.62–1.98V | FADE | MENU |
| 0.72–1.08V | STILL/STROBE | DOWN/NEAR |
| 0–0.18V | BACK LIGHT | UP/FAR |

## (CAMERA WIPE MODE)

| TERMINAL VOLTAGE | KEY DATA 2 (PIN 84) | KEY DATA 4 (PIN 81) |
|---|---|---|
| 3.42–3.78V | LIGHT | --- |
| 2.52–2.88V | --- | MANUAL FOCUS/ SET |
| 1.62–1.98V | MODE | MENU |
| 0.72–1.08V | START | SELECT+ DOWN/NEAR |
| 0–0.18V | BACK LIGHT | SELECT– UP/FAR |

## (PHOTO REC MODE)

| TERMINAL VOLTAGE | KEY DATA 2 (PIN 84) | KEY DATA 4 (PIN 81) |
|---|---|---|
| 3.42–3.78V | LIGHT | --- |
| 2.52–2.88V | --- | MANUAL FOCUS/ SET |
| 1.62–1.98V | --- | MENU |
| 0.72–1.08V | TO PHOTO THUMBNAIL MODE | DOWN/NEAR |
| 0–0.18V | BACK LIGHT | UP/FAR |

## (PHOTO THUMBNAIL MODE)

| TERMINAL VOLTAGE | KEY DATA 2 (PIN 84) | KEY DATA 4 (PIN 81) |
|---|---|---|
| 3.42–3.78V | M. DEL | --- |
| 2.52–2.88V | --- | --- |
| 1.62–1.98V | --- | MENU |
| 0.72–1.08V | M. PLAY | SELECT+ |
| 0–0.18V | TO PHOTO REC MODE | SELECT– |

## (PHOTO PLAY MODE)

| TERMINAL VOLTAGE | KEY DATA 2 (PIN 84) | KEY DATA 4 (PIN 81) |
|---|---|---|
| 3.42–3.78V | --- | --- |
| 2.52–2.88V | --- | SET |
| 1.62–1.98V | --- | MENU |
| 0.72–1.08V | --- | SELECT+ DOWN |
| 0–0.18V | TO PHOTO THUMBNAIL MODE | SELECT– UP |

## IC6001 KEY VOLTAGE CHART (LCD PANEL MODE) (SW9101, 9102)

| TERMINAL VOLTAGE (Pin 79 of IC6001) | LCD PANEL MODE | |
|---|---|---|
| | NORMAL/ REVERSE | OPEN/CLOSE |
| 0V | NORMAL | CLOSE |
| 2.6V | NORMAL | OPEN |
| 1.1V | REVERSE | CLOSE |
| 3.5V | REVERSE | OPEN |

**IC6001** MN101D06FWG (SYSTEM CONTROL/SERVO MICROCONTROLLER)

LINK TO I/O CHART

LINK TO VOLTAGE CHART
LINK TO SIGNAL WAVEFORM
**LSJB8204**
**MAIN II (SYSTEM CONTROL/SERVO) SCHEMATIC DIAGRAM**
**PV-L453**

# I/O CHART OF IC6001

| Pin No. | I/O | Signal Name | Description |
|---|---|---|---|
| 1 | I | POWER | POWER SW |
| 2 | I | TALLY | REC SW ON(L) |
| 3 | I | EJECT | EJECT SW |
| 4 | I | POS1 | MODE SW POSITION 1 |
| 5 | - | ----- | (Not used) |
| 6 | O | POWER | POWER ON(H) |
| 7 | O | LOAD2 | LOADING MOTOR REV(H) |
| 8 | O | LOAD1 | LOADING MOTOR FWD(H) |
| 9 | I | POS2 | MODE SW POSITION 2 |
| 10 | I | KEY_IN 1 | KEY DATA1 |
| 11 | I | NSBT1 | CAM SERIAL CLOCK |
| 12 | I | NSBI1 | CAM SERIAL DATA 0 |
| 13 | O | NSBO1 | CAM SERIAL DATA 1 |
| 14 | I | NSBT0 | SERIAL CLOCK |
| 15 | I | NSBI0 | SERIAL DATA 0 |
| 16 | O | NSBO0 | SERIAL DATA 1 |
| 17 | O | SPK_ON_H | SPEAKER ON(H) |
| 18 | - | EVF_CNT | (Not used) |
| 19 | O | CYLON | CYL ON(L) |
| 20 | O | TLIM | CAP TORQUE LIMIT |
| 21 | O | RSF | CAP DIRECTION CTL |
| 22 | O | ACC | FORCED ACCELERATION |
| 23 | O | HSW | HEAD SW |
| 24 | O | VLP | V-LOCK PULSE |
| 25 | I | NRST | RESET(L) |
| 26 | O | FLYE | FLYING ERASE ON(H) |
| 27 | O | VDREC | VIDEO DELAY REC(H) |
| 28 | O | LCD_ON-H | LCD ON(H) |
| 29 | O | ARECCT | AUDIO REC(H)/PB(L) |
| 30 | O | DTCS | IC6005 CS(H) |
| 31 | - | ----- | (Not used) |
| 32 | I | CAM-CS | CAM CS(L) |
| 33 | O | PWM1 | CAP SPEED ERROR |
| 34 | O | PWM0 | CYL SPEED ERROR |
| 35 | - | PWM4 | (Not used) |
| 36 | I | VDD | VDD (+4.5V) |
| 37 | O | OSCO | OSC 1 |
| 38 | I | OSCI | OSC 2 |
| 39 | - | VSS | Ground |
| 40 | I | XI | CLOCK(32KHz) |
| 41 | - | XO | (Not used) |
| 42 | I | SXI | SXI |
| 43 | I | PHOTO | PHOTO ON(L) |
| 44 | O | RSTOUT | AUDIO RESET(L) |
| 45 | O | EEPROM_CS | IC6008 CS(H) |
| 46 | - | RSTMN67324 | (Not used) |
| 47 | O | CLOCK+B | CLOCK +B |
| 48 | - | VSS | Ground |
| 49 | - | ----- | (Not used) |
| 50 | I | CVIN | VIDEO |
| 51 | I | VDD2 | VDD (+4.5V) |
| 52 | O | AFCC | AFC |
| 53 | I | AFCLPF | AFC |
| 54 | O | LCD_BL_CONT | LCD BACKLIGHT CONTROL |

| Pin No. | I/O | Signal Name | Description |
|---|---|---|---|
| 55 | O | LIGHT | LIGHT ON(H) |
| 56 | O | AMUTE | AUDIO MUTE(H) |
| 57 | O | VCS | D/A LOAD |
| 58 | O | VOB2 | OSD BLANKING DATA |
| 59 | O | VOB1 | OSD BLANKING DATA |
| 60 | O | VOW4 | OSD DATA |
| 61 | O | VOW3 | OSD(DATE/TIME)DATA |
| 62 | - | ----- | (Not used) |
| 63 | - | ----- | (Not used) |
| 64 | I | CDOWN | CASSETTE DOWN(L) |
| 65 | I | YFG | CYL FG |
| 66 | I | YPG | CYL PG |
| 67 | O | FGF | CAP FG |
| 68 | I | AFG | CAP PG |
| 69 | O | VRO | V-REF |
| 70 | I | VRI | V-REF |
| 71 | - | AVSS | Ground |
| 72 | I | CTLA | CTL AMP |
| 73 | I | AVDD | VDD (+4.5V) |
| 74 | I/O | RCTLP | CTL PULSE(+) |
| 75 | I/O | RCTLN | CTL PULSE(-) |
| 76 | O | CO | PB CONTROL PULSE |
| 77 | I | STAB | SAFETY TAB BROKEN(H) |
| 78 | I | LIGHT_SCP | LIGHT SHORT CIRCUIT PROTECT |
| 79 | I | LCDMOD | LCD PANEL MODE |

| TERMINAL VOLTAGE | LCD PANEL MODE | |
|---|---|---|
| | NORMAL/ REVERSE | OPEN/ CLOSE |
| 0V | NORMAL | CLOSE |
| 2.6V | NORMAL | OPEN |
| 1.1V | REVERSE | CLOSE |
| 3.5V | REVERSE | OPEN |

| Pin No. | I/O | Signal Name | Description |
|---|---|---|---|
| 80 | I | SREEL | SUPPLY REEL PULSE |
| 81 | I | KEYAD4 | KEY DATA 4 |
| 82 | I | KEYAD3 | (Not used) |
| 83 | I | BATT/EXT | BATTERY/EXT VOLTAGE DETECT |
| 84 | I | KEYAD2 | KEY DATA 2 |
| 85 | I | BATT | BATTERY UNDERCUT |
| 86 | I | SPHOTO | SUPPLY PHOTO TR(L) |
| 87 | - | ----- | (Not used) |
| 88 | I | DEW | DEW SENSOR |
| 89 | I | ENV | ENV-VOLTAGE |
| 90 | I | TREEL | TAKE UP REEL PULSE |
| 91 | O | SLED | SENSOR LED ON(H) |
| 92 | O | DEW+B | DEW +B |
| 93 | - | ----- | (Not used) |
| 94 | O | KEYSCAN4 | SCAN 4 |
| 95 | O | KEYSCAN3 | SCAN 3 |
| 96 | O | KEYSCAN2 | SCAN 2 |
| 97 | O | KEYSCAN1 | SCAN 1 |
| 98 | O | ROTA | ROTARY SW |
| 99 | - | HAMP | (Not used) |
| 100 | - | DENV | (Not used) |

# I/O CHART OF IC6005

| Pin No. | I/O | Signal Name | Description |
|---|---|---|---|
| 1 | O | TP0 | Clock (32kHz) |
| 2 | I | XIN | X In |
| 3 | O | XOUT | X Out |
| 4 | - | GND | Ground |
| 5 | I | CS | CS (H) |
| 6 | I | SCK | Serial Clock |
| 7 | I/O | SIO | Serial Data1 |
| 8 | I | VDD | VDD (+3.5V) |

# IC6007 LOADING MOTOR DRIVE IC- DETAIL BLOCK DIAGRAM

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
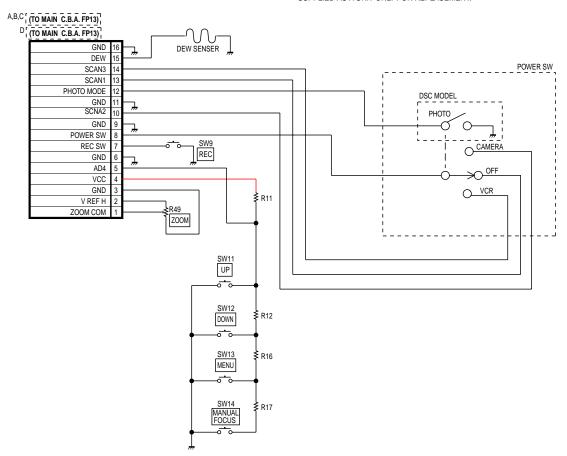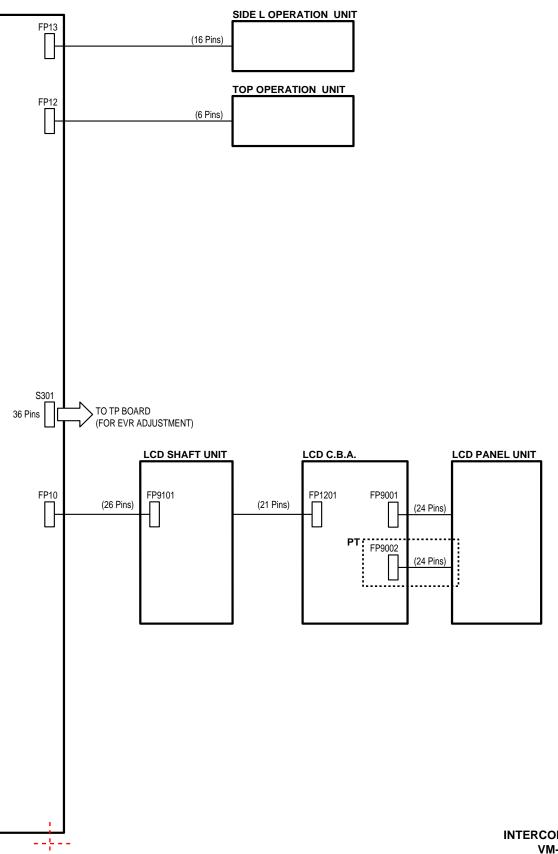REFER TO BEGINNING OF SCHEMATIC SECTION.

| COMPARISON CHART OF MODELS & MARKS | |
| --- | --- |
| MODEL | MARK |
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |



MAIN III (CYLINDER/ CAPSTAN DRIVE) SCHEMATIC DIAGRAM (D)

**IC2001** AN3897FH-V (CYLINDER/CAPSTAN MOTOR DRIVE)

**IC2002** UNA022400L (CAPSTAN MOTOR DRIVE)

**IC2003** UNA022400L (CYLINDER MOTOR DRIVE)

TO M I:
70 VMR_CAP
71 VH-_CAP
72 H1+_CAP
73 H1-_CAP
74 H2+_CAP
75 H2-_CAP
76 H3+_CAP
77 H3-_CAP
78 VH+_CAP
79 M2_CAP
80 M3_CAP
81 M1_CAP

86 FG+_CYL
87 PG_CYL
88 M2_CYL
89 VH-_PG
90 VH+_PG
91 VH+_H1_H2_H3
92 VH-_H3
93 H3-_CYL
94 H3+_CYL
95 H2-_CYL
96 H2+_CYL
97 H1-_CYL
98 H1+_CYL
99 M3_CYL
100 M1_CYL

TO M IX:
82 CAP_SW
83 TRI.WAVE
84 CAP_VM
85 SERVO_REG_4.5V

101 CYL_VM
102 SW_CYL_UNREG

TO M II:
30 SYS_VREF
23 CYLON
22 CYL_ERR_PWM0
18 RSF
19 TLIM
20 ACC
21 CAP_ERR_PWM1
29 YPG
28 YFG

# IC2001 CYL/CAP MOTOR DRIVE CONTROL IC- DETAIL BLOCK DIAGRAM

## IC2002 CAP MOTOR DRIVE IC- DETAIL BLOCK DIAGRAM

## IC2003 CYL MOTOR DRIVE IC- DETAIL BLOCK DIAGRAM

# MAIN IV (CAMERA I) SCHEMATIC DIAGRAM (D)

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

REC VIDEO SIGNAL

## IC505 SHUNT REGULATOR
## IC- DETAIL BLOCK DIAGRAM

COMPARATOR

V-REF(2.465V)

IC505 NJM2380AF SHUNT REGULATOR

IC301
MN673241
(DIGITAL SIGNAL PROCESS)

LINK TO I/O CHART

LINK TO VOLTAGE CHART

| TO M V | 103 | CAMDSP_CS2 |
| TO M V | 104 | CAMDSP_CS1 |
| TO M V | 105 | DSP_RESET |
| TO M VI | 106 | SCO |
| TO M V | 107 | FH2 |
| TO M IX | 108 | CAMERA_A3.5V |
| TO M VII | 109 | CAMERA_C |
| TO M VII | 110 | LPF4.5V |
| TO M VII, M X | 111 | CAMERA_Y |
| TO M VI | 112 | CAMDSP_CS3 |
| TO M V | 113 | FCK |
| TO M VI | 114 | CAMDSP_BEND |
| TO M V | 115 | BLKNWE |
| TO M VI | 116 | IRIS_PWM |
| TO M VI | 117 | DCP |
| TO M VI | 118 | BLK |
| TO M VI | 119 | SYNC |
| TO M VI | 120 | BF |
| TO M VI | 121 | HCLR |
| TO M VI | 122 | CAMDSP_WE |
| TO M VI | 123 | CAMDSP_RE |
| TO M X | 124 | EVR_VD |
| TO M VI | 125 | HD |
| TO M VI | 126 | VD |
| TO M VI | 127 | VREF_L |
| TO M VI | 128 | VREF_H |
| TO M VI | 129 | ADIN |
| TO M V | 130 | DSPADR[7] |
| TO M V | 131 | DSPADR[6] |
| TO M V | 132 | DSPADR[5] |
| TO M V | 133 | DSPADR[4] |
| TO M V | 134 | DSPADR[3] |
| TO M V | 135 | DSPADR[2] |
| TO M V | 136 | DSPADR[1] |
| TO M V | 137 | DSPADR[0] |

| CAMERA_3.5V | 138 | TO M IX |
| CAMERA_4.5V | 139 | TO M IX |
| C_MICOM_3.5V | 140 | TO M I, M V |
| BLKDATA[0] | 141 | TO M V |
| BLKDATA[1] | 142 | TO M V |
| BLKDATA[2] | 143 | TO M V |
| BLKDATA[3] | 144 | TO M V |
| BLKDATA[4] | 145 | TO M V |
| BLKDATA[5] | 146 | TO M V |
| BLKDATA[6] | 147 | TO M V |
| BLKDATA[7] | 148 | TO M V |
| BLKADR[0] | 149 | TO M V |
| BLKADR[1] | 150 | TO M V |
| BLKADR[2] | 151 | TO M V |
| BLKADR[3] | 152 | TO M V |
| CAMDSP_CS4 | 153 | TO M V |
| DIS_IRQ | 154 | TO M V |
| BLKNRE | 155 | TO M V |
| DSPDB[0] | 156 | TO M V |
| DSPDB[1] | 157 | TO M V |
| DSPDB[2] | 158 | TO M V |
| DSPDB[3] | 159 | TO M V |
| DSPDB[4] | 160 | TO M V |
| DSPDB[5] | 161 | TO M V |
| DSPDB[6] | 162 | TO M V |
| DSPDB[7] | 163 | TO M V |

DSPADR[0-7]
DSPDB[0-7]
BLKDATA[0-7]
BLKADR[0-3]

**LSJB8204**
**MAIN IV (CAMERA I) SCHEMATIC DIAGRAM**
**PV-L453**

# I/O CHART OF IC301

| Pin No. | I/O | Signal Name | Description | Pin No. | I/O | Signal Name | Description |
|---|---|---|---|---|---|---|---|
| 1 | I | VDD3 | VDD (+3.5V) | 73 | - | COMPC | CHROMINANCE D/A CONTROL |
| 2 | - | VSS | Ground | 74 | - | IREFC | CHROMINANCE D/A I-REF |
| 3 | - | BISTH | (Not used) | 75 | I | VDDDA | VDD (+3.5V) |
| 4 | - | NDRAMTEST | (Not used) | 76 | - | VSSDA | Ground |
| 5 | - | DEBUGZ | (Not used) | 77 | O | COUTA | CHROMINANCE |
| 6 | - | FMCOUT3 | (Not used) | 78 | O | YOUTA | LUMINANCE |
| 7 | - | FMCOUT2 | (Not used) | 79 | - | VSSDA | Ground |
| 8 | - | FMCOUT1 | (Not used) | 80 | I | VDDDA | VDD (+3.5V) |
| 9 | - | FMCOUT0 | (Not used) | 81 | - | IREFY | LUMINANCE D/A I-REF |
| 10 | I | CS4 | DSP CHIP SELECT 4 | 82 | - | COMPY | LUMINANCE D/A CONTROL |
| 11 | - | FMYIN7 | (Not used) | 83 | - | TEST1 | (Not used) |
| 12 | - | FMYIN6 | (Not used) | 84 | I | UVSELIN | R-Y(L)/B-Y(H) |
| 13 | - | FMYIN5 | (Not used) | 85 | I | VDD3 | VDD (+3.5V) |
| 14 | - | FMYIN4 | (Not used) | 86 | - | VSS | Ground |
| 15 | I | VDD25 | VDD (+2.5V) | 87 | I | CS3 | DSP CHIP SELECT 3 |
| 16 | - | VSS | Ground | 88 | - | DCK | (Not used) |
| 17 | I | BLKADRS3 | ADDRESS 3 | 89 | I | CLK | CLOCK |
| 18 | I | BLKADRS2 | ADDRESS 2 | 90 | I | CSPC | COLOR SEPARATION CONTROL |
| 19 | I | BLKADRS1 | ADDRESS 1 | 91 | O | BEND | BLOCK END CONTROL |
| 20 | I | BLKADRS0 | ADDRESS 0 | 92 | I | BLKNWE | WRITE ENABLE |
| 21 | I/O | BLKDATA7 | DATA 7 | 93 | I | VDD25 | VDD (+2.5V) |
| 22 | - | BLKDATA6 | DATA 6 | 94 | - | FLD | (Not used) |
| 23 | - | BLKDATA5 | DATA 5 | 95 | - | UVSEL | (Not used) |
| 24 | - | BLKDATA4 | DATA 4 | 96 | O | PWM | IRIS PWM CONTROL |
| 25 | - | BLKDATA3 | DATA 3 | 97 | I | DCP | CLANP PULSE |
| 26 | I/O | BLKDATA2 | DATA 2 | 98 | I | BLK | BLANKING PULSE |
| 27 | - | VSS | Ground | 99 | I | SYNC | V/H SYNC |
| 28 | I | VDD3 | VDD (+3.5V) | 100 | - | CP2 | (Not used) |
| 29 | I/O | BLKDATA1 | DATA 1 | 101 | I | BF | BURST FLAG PULSE |
| 30 | I/O | BLKDATA0 | DATA 0 | 102 | I | HCLR | H CLEAR PULSE |
| 31 | - | FMCIN3 | (Not used) | 103 | I | NWE | WRITE ENABLE |
| 32 | - | FMCIN2 | (Not used) | 104 | I | NRE | READ ENABLE |
| 33 | - | PTESTDRAM1 | (Not used) | 105 | - | NTDRAM | (Not used) |
| 34 | - | PTESTDRAM0 | (Not used) | 106 | - | VSS | Ground |
| 35 | - | VSS25 | Ground | 107 | I | VDD3 | VDD (+3.5V) |
| 36 | I | VDD25 | VDD (+2.5V) | 108 | I | CLKA | CLOCK |
| 37 | - | NPOWCA | (Not used) | 109 | I | VDDAD | VDD (+3.5V) |
| 38 | - | NTSEL | (Not used) | 110 | I | REFBTM | V-REF(L) |
| 39 | - | BTEST1 | (Not used) | 111 | I | REFBTM | V-REF(H) |
| 40 | - | TESL2 | (Not used) | 112 | I | VINA | A/D SIGNAL |
| 41 | - | TESL1 | (Not used) | 113 | - | VSSAD | Ground |
| 42 | - | TESL0 | (Not used) | 114 | I | CS0 | (Not used) |
| 43 | - | MASK L | (Not used) | 115 | I | VD | V SYNC |
| 44 | - | CP20 | (Not used) | 116 | I | HD | H SYNC |
| 45 | I | VCTRL0 | V CONTROL | 117 | I | ADR7 | ADDRESS 7 |
| 46 | - | CSPEC | (Not used) | 118 | I | ADR6 | ADDRESS 6 |
| 47 | - | BF0 | (Not used) | 119 | I | ADR5 | ADDRESS 5 |
| 48 | - | VEN | (Not used) | 120 | I | VDD3 | VDD (+3.5V) |
| 49 | - | BLK0 | (Not used) | 121 | - | VSS | Ground |
| 50 | O | SYNC0 | V/H SYNC | 122 | I | ADR4 | ADDRESS 4 |
| 51 | - | VSS | Ground | 123 | I | ADR3 | ADDRESS 3 |
| 52 | I | VDD3 | VDD (+3.5V) | 124 | I | ADR2 | ADDRESS 2 |
| 53 | I | CS2 | DSP CHIP SELECT 2 | 125 | I | ADR1 | ADDRESS 1 |
| 54 | I | CS1 | DSP CHIP SELECT 1 | 126 | I | ADR0 | ADDRESS 0 |
| 55 | I | RST | DSP RESET(L) | 127 | I/O | DB7 | DATA 7 |
| 56 | O | VCTRL | V CONTROL | 128 | I/O | DB6 | DATA 6 |
| 57 | I | TEST4 | (Not used) | 129 | I/O | DB5 | DATA 5 |
| 58 | - | ADTEST0 | (Not used) | 130 | I/O | DB4 | DATA 4 |
| 59 | - | ADTEST1 | (Not used) | 131 | I/O | DB3 | DATA 3 |
| 60 | - | ADTEST2 | (Not used) | 132 | I/O | DB2 | DATA 2 |
| 61 | - | ADTEST3 | (Not used) | 133 | I/O | DB1 | DATA 1 |
| 62 | - | ADTEST4 | (Not used) | 134 | I | BLKNRE | READ ENABLE |
| 63 | - | VSS | Ground | 135 | I | VDD25 | VDD (+2.5V) |
| 64 | I | VDD25 | VDD (+2.5V) | 136 | I/O | DB0 | DATA 0 |
| 65 | - | ADTEST5 | (Not used) | 137 | - | ZONE0 | (Not used) |
| 66 | - | ADTEST6 | (Not used) | 138 | O | UVSEL0 | R-Y(L)/B-Y(H) |
| 67 | - | ADTEST7 | (Not used) | 139 | - | VCTRL | (Not used) |
| 68 | - | SOUT | (Not used) | 140 | - | DSEL | (Not used) |
| 69 | I | SCLK | SERIAL CLOCK | 141 | - | BTEST0 | (Not used) |
| 70 | - | NINTEST | (Not used) | 142 | - | TEST3 | (Not used) |
| 71 | - | TEST0 | (Not used) | 143 | - | TEST2 | (Not used) |
| 72 | I | VREF | V-REF | 144 | O | IRQ | DIS INTERRUPT REQUEST |
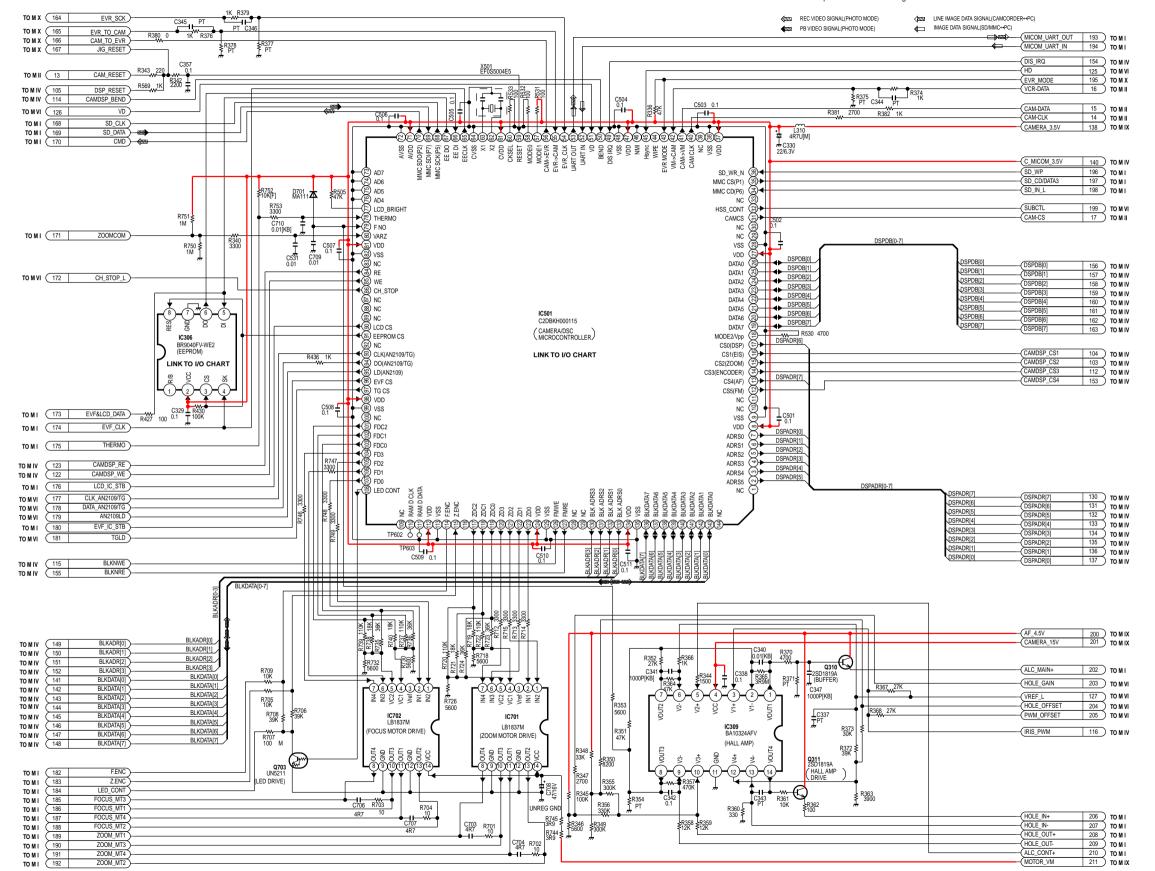
# MAIN V (CAMERA II/LENS DRIVE) SCHEMATIC DIAGRAM (D)

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

**COMPARISON CHART OF MODELS & MARKS**

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |



**LINK TO VOLTAGE CHART**

**LSJB8204**

**MAIN V (CAMERA II/LENS DRIVE) SCHEMATIC DIAGRAM**

**PV-L453**

## I/O CHART OF IC501
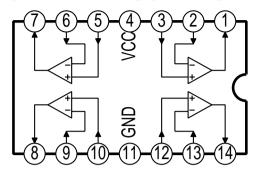
| Pin No. | I/O | Signal Name | Description |
|---|---|---|---|
| 1 | - | NC | (Not used) |
| 2 | O | ADRS5 | ADDRESS 5 |
| 3 | O | ADRS4 | ADDRESS 4 |
| 4 | O | ADRS3 | ADDRESS 3 |
| 5 | O | ADRS2 | ADDRESS 2 |
| 6 | O | ADRS1 | ADDRESS 1 |
| 7 | O | ADRS0 | ADDRESS 0 |
| 8 | I | VDD | VDD (+3.5V) |
| 9 | - | VSS | Ground |
| 10 | - | NC | (Not used) |
| 11 | - | NC | (Not used) |
| 12 | O | CS5(FM) | CHIP SELECT 5 |
| 13 | O | CS4(AF) | ADDRESS 7 |
| 14 | O | CS3(ENCODER) | CHIP SELECT 3 |
| 15 | O | CS2(ZOOM) | CHIP SELECT 2 |
| 16 | O | CS1(EIS) | CHIP SELECT 1 |
| 17 | O | CS0(DSP) | ADDRESS 6 |
| 18 | - | MODE2/Vpp | IC MODE SETTING 2 |
| 19 | I/O | DATA7 | DATA 7 |
| 20 | I/O | DATA6 | DATA 6 |
| 21 | I/O | DATA5 | DATA 5 |
| 22 | I/O | DATA4 | DATA 4 |
| 23 | I/O | DATA3 | DATA 3 |
| 24 | I/O | DATA2 | DATA 2 |
| 25 | I/O | DATA1 | DATA 1 |
| 26 | I/O | DATA0 | DATA 0 |
| 27 | I | VDD | VDD (+3.5V) |
| 28 | - | VSS | Ground |
| 29 | - | NC | (Not used) |
| 30 | - | NC | (Not used) |
| 31 | O | CAMCS | CAM CS(L) |
| 32 | O | HSS_CONT | SUB CONTROL PULSE |
| 33 | - | NC | (Not used) |
| 34 | I | MMC CD(P6) | SD IN(L) |
| 35 | O | MMC CS(P1) | MMC CS(L) |
| 36 | I | SD_WR_N | SD WRITE PROTECT(L) |
| 37 | I | VDD | VDD (+3.5V) |
| 38 | - | VSS | Ground |
| 39 | - | NC | (Not used) |
| 40 | O | CAM CLK | CAM SERIAL CLOCK |
| 41 | O | CAM->VM | CAM SERIAL DATA 0 |
| 42 | I | VM->CAM | CAM SERIAL DATA 1 |
| 43 | I | EVR MODE | EVR MODE(L) |
| 44 | - | WIPE | (Not used) |
| 45 | I | Hsync | H-SYNC |
| 46 | - | NMI | Ground |
| 47 | I | VDD | VDD (+3.5V) |
| 48 | - | VSS | Ground |
| 49 | I | DIS IRQ | DIS IRQ |
| 50 | I | BEND | BLOCK END CONTROL |
| 51 | I | VD | V-SYNC |
| 52 | I | UART IN | RS232C RECEIVED DATA |
| 53 | O | UART OUT | RS232C TRANSMITTED DATA |
| 54 | I | EVR_CLK | EVR SERIAL CLOCK |
| 55 | I | EVR->CAM | EVR SERIAL DATA 1 |
| 56 | O | CAM->EVR | EVR SERIAL DATA 0 |
| 57 | I | MODE1 | IC MODE SETTING 1 |
| 58 | I | MODE0 | IC MODE SETTING 0 |
| 59 | I | RESET | RESET(L) |
| 60 | - | CKSEL | (Not used) |
| 61 | I | CVDD | VDD (+3.5V) |
| 62 | O | X2 | OSC 1 |
| 63 | I | X1 | OSC 2 |
| 64 | - | CVSS | Ground |
| 65 | O | EE CLK | SERIAL CLOCK |
| 66 | I | EE DI | SERIAL DATA 1 |
| 67 | O | EE DO | SERIAL DATA 0 |
| 68 | O | MMC SCK(P5) | MMC/SD SERIAL CLOCK |
| 69 | I | MMC SDI | MMC/SD SERIAL DATA 1 |
| 70 | O | MMC SDO | MMC/SD SERIAL DATA 0 |
| 71 | I | AVDD | VDD (+3.5V) |
| 72 | - | AVSS | Ground |

| Pin No. | I/O | Signal Name | Description |
|---|---|---|---|
| 73 | - | AD7 | (Not used) |
| 74 | - | AD6 | (Not used) |
| 75 | - | AD5 | (Not used) |
| 76 | - | AD4 | (Not used) |
| 77 | - | LCD_BRIGHT | (Not used) |
| 78 | I | THERMO | THERMO (LENS TEMPERATURE DET.) |
| 79 | I | FNO | F NUMBER SIGNAL |
| 80 | I | VARZ | ZOOM SWITCH DET |
| 81 | I | VDD | VDD (+3.5V) |
| 82 | - | VSS | Ground |
| 83 | - | NC | (Not used) |
| 84 | O | RE | READ ENABLE |
| 85 | O | WE | WRITE ENABLE |
| 86 | O | CH-STOP | CHARGE STOP(L) |
| 87 | - | NC | (Not used) |
| 88 | - | NC | (Not used) |
| 89 | - | NC | (Not used) |
| 90 | O | LCD CS | LCD LOAD |
| 91 | O | EEPROM CS | EEPROM CS(L) |
| 92 | - | NC | (Not used) |
| 93 | O | CLK(AN2109/TG) | D/A SERIAL CLOCK |
| 94 | O | DO(AN2109/TG) | D/A SERIAL DATA |
| 95 | O | LD(AN2109) | D/A LOAD |
| 96 | O | EVF CS | EVF LOAD |
| 97 | O | TG CS | TG LOAD |
| 98 | I | VDD | VDD (+3.5V) |
| 99 | - | VSS | Ground |
| 100 | - | NC | (Not used) |
| 101 | O | FDC2 | FOCUS MOTOR DRIVE CONTROL 2 |
| 102 | O | FDC1 | FOCUS MOTOR DRIVE CONTROL 1 |
| 103 | O | FDC0 | FOCUS MOTOR DRIVE CONTROL 0 |
| 104 | O | FD3 | FOCUS MOTOR DRIVE 3 |
| 105 | O | FD2 | FOCUS MOTOR DRIVE 2 |
| 106 | O | FD1 | FOCUS MOTOR DRIVE 1 |
| 107 | O | FD0 | FOCUS MOTOR DRIVE 0 |
| 108 | O | LED CONT | LED CONTROL |
| 109 | - | NC | (Not used) |
| 110 | - | RAM D CLK | (Not used) |
| 111 | - | RAM D DATA | (Not used) |
| 112 | I | VDD | VDD (+3.5V) |
| 113 | - | VSS | Ground |
| 114 | I | F.ENC | FOCUS ENCODER |
| 115 | I | Z.ENC | ZOOM ENCODER |
| 116 | - | ----- | (Not used) |
| 117 | O | ZDC2 | ZOOM MOTOR DRIVE CONTROL 2 |
| 118 | O | ZDC1 | ZOOM MOTOR DRIVE CONTROL 1 |
| 119 | O | ZDC0 | ZOOM MOTOR DRIVE CONTROL 0 |
| 120 | O | ZD3 | ZOOM MOTOR DRIVE 3 |
| 121 | O | ZD2 | ZOOM MOTOR DRIVE 2 |
| 122 | O | ZD1 | ZOOM MOTOR DRIVE 1 |
| 123 | O | ZD0 | ZOOM MOTOR DRIVE 0 |
| 124 | I | VDD | VDD (+3.5V) |
| 125 | - | VSS | Ground |
| 126 | O | FMWE | FIELD MEMORY WRITE ENABLE |
| 127 | O | FMRE | FIELD MEMORY READ ENABLE |
| 128 | - | NC | (Not used) |
| 129 | - | NC | (Not used) |
| 130 | O | BLK ADRS3 | ADDRESS 3 |
| 131 | O | BLK ADRS2 | ADDRESS 2 |
| 132 | O | BLK ADRS1 | ADDRESS 1 |
| 133 | O | BLK ADRS0 | ADDRESS 0 |
| 134 | I | VDD | VDD (+3.5V) |
| 135 | - | VSS | Ground |
| 136 | I/O | BLKDATA7 | DATA 7 |
| 137 | I/O | BLKDATA6 | DATA 6 |
| 138 | I/O | BLKDATA5 | DATA 5 |
| 139 | I/O | BLKDATA4 | DATA 4 |
| 140 | I/O | BLKDATA3 | DATA 3 |
| 141 | I/O | BLKDATA2 | DATA 2 |
| 142 | I/O | BLKDATA1 | DATA 1 |
| 143 | I/O | BLKDATA0 | DATA 0 |
| 144 | - | NC | (Not used) |

## I/O CHART OF IC306

| Pin No. | I/O | Signal Name | Description |
|---|---|---|---|
| 1 | - | R/B | (Not Used) |
| 2 | I | VCC | VDD (+3.5V) |
| 3 | I | CS | EEPROM CS(L) |
| 4 | I | SK | Serial Clock |
| 5 | I | DI | Serial Data 0 |
| 6 | O | DO | Serial Data 1 |
| 7 | - | GND | Ground |
| 8 | I | RES | Reset (L) |

## IC309 HALL/IRIS AMP IC- DETAIL BLOCK DIAGRAM



## IC701 ZOOM MOTOR DRIVE IC- DETAIL BLOCK DIAGRAM



## IC702 FOCUS MOTOR DRIVE IC- DETAIL BLOCK DIAGRAM

I/O CHART OF IC501
I/O CHART OF IC306
IC309 DETAIL BLOCK DIAGRAM
/IC701 DETAIL BLOCK DIAGRAM
/IC702 DETAIL BLOCK DIAGRAM
PV-L453

# MAIN VI (CCD DRIVE) SCHEMATIC DIAGRAM (D)

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

LINK TO VOLTAGE CHART

LINK TO SIGNAL WAVEFORM

LSJB8204
MAIN VI (CCD DRIVE) SCHEMATIC DIAGRAM
PV-L453

## I/O CHART OF IC602

| Pin No. | I/O | Signal Name | Description |
|---|---|---|---|
| 1 | - | VSS | Ground |
| 2 | I | XI | X In |
| 3 | O | XO | X Out |
| 4 | I | SDI | TG SERIAL DATA |
| 5 | O | SCO | SERIAL CLOCK |
| 6 | - | CLK | CLOCK |
| 7 | - | TEST1 | (Not used) |
| 8 | I | SCK | TG SERIAL CLOCK |
| 9 | O | DCP | CLAMP PULSE |
| 10 | O | PBLK | PRE BLANKING PULSE |
| 11 | O | CP0B | OB CLAMP PULSE |
| 12 | O | CBLK | BLANKING PULSE |
| 13 | O | BF | BURSTFLAG PULSE |
| 14 | O | HCRL | H CLEAR PULSE |
| 15 | - | DCC | (Not used) |
| 16 | - | CP2 | (Not used) |
| 17 | O | HD | H-SYNC |
| 18 | O | VD | V-SYNC |
| 19 | O | FH2 | FH2 |
| 20 | O | SYNC | V/H SYNC |
| 21 | - | TEST2 | (Not used) |
| 22 | I | SLD | TG LOAD |
| 23 | I | SUBCTL | SUB CONTROL PULSE |
| 24 | - | VSS | Ground |
| 25 | I | VDD | VDD (+3.5V) |
| 26 | O | SUB | SUB CONTROL PULSE |
| 27 | O | V1 | V1 PULSE |
| 28 | O | V2 | V2 PULSE |
| 29 | O | V3 | V3 PULSE |
| 30 | O | V4 | V4 PULSE |
| 31 | O | CH1 | V1 CHARGE PULSE |
| 32 | O | CH2 | V3 CHARGE PULSE |
| 33 | I | VDD | VDD (+3.5V) |
| 34 | - | VSS | Ground |
| 35 | O | H2 | H2 PULSE |
| 36 | O | H1 | H1 PULSE |
| 37 | O | R | RESET PULSE |
| 38 | O | VDD | VDD (+3.5V) |
| 39 | - | ASEL2 | (Not used) |
| 40 | O | VSS | Ground |
| 41 | - | ASEL1 | (Not used) |
| 42 | - | RWO | RESET PULSE WIDTH |
| 43 | - | RWI | RESET PULSE WIDTH |
| 44 | - | VCTL | (Not used) |
| 45 | O | DS1 | DOUBLE SAMPLING PULSE 1 |
| 46 | O | DS2 | DOUBLE SAMPLING PULSE 2 |
| 47 | O | ADS | FCK |
| 48 | - | CCDSW1 | (Not used) |
| 49 | O | O1 | CLOCK |
| 50 | - | I1 | CLOCK |
| 51 | I | CLKCNT1 | CHARGE STOP |
| 52 | - | DS1SEL1 | DOUBLE SAMPLING PULSE 1 WIDTH |
| 53 | - | DS1SEL2 | DOUBLE SAMPLING PULSE 1 WIDTH |
| 54 | - | DS2SEL1 | DOUBLE SAMPLING PULSE 2 WIDTH |
| 55 | - | DS2SEL2 | DOUBLE SAMPLING PULSE 2 WIDTH |
| 56 | I | VDD | VDD (+3.5V) |
| 57 | I | CLR | TG OFF CONTROL |
| 58 | - | FCK2WI | FCK DUTY CONTROL |
| 59 | - | FCK2WO | FCK DUTY CONTROL |
| 60 | - | CCDSW2 | (Not used) |
| 61 | I | CLKCNT2 | EE H IN |
| 62 | - | CSEL1 | (Not used) |
| 63 | - | CSEL2 | (Not used) |
| 64 | I | VDD | VDD (+3.5V) |

## IC603 CCD V DRIVE
## IC- DETAIL BLOCK DIAGRAM



## IC605 SAMPLING HOLD / AGC CONTROL
## IC- DETAIL BLOCK DIAGRAM

# MAIN VII (VIDEO) SCHEMATIC DIAGRAM (D)

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

**COMPARISON CHART OF MODELS & MARKS**

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |



**LINK TO VOLTAGE CHART**

**LINK TO SIGNAL WAVEFORM**

**LSJB8204**
**MAIN VII (VIDEO) SCHEMATIC DIAGRAM**
**PV-L453**

# IC3001 LUMINANCE/CHROMINANCE SIGNAL PROCESS
# IC- DETAIL BLOCK DIAGRAM

# IC3002 TWIN CCD IH DELAY
# IC- DETAIL BLOCK DIAGRAM

# MAIN VIII (AUDIO) SCHEMATIC DIAGRAM (D)

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

| COMPARISON CHART OF MODELS & MARKS | |
|---|---|
| MODEL | MARK |
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |

◀ REC AUDIO SIGNAL   ◀ PB AUDIO SIGNAL

IC4001
AN12998A-V
(AUDIO SIGNAL PROCESS)

LINK TO VOLTAGE CHART
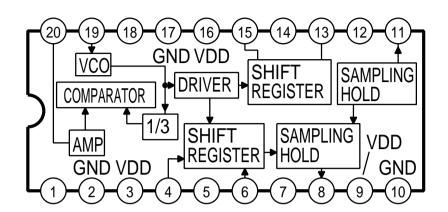
LSJB8204
MAIN VIII (AUDIO) SCHEMATIC DIAGRAM
PV-L453

# IC4001 AUDIO SIGNAL PROCESS IC- DETAIL BLOCK DIAGRAM

◀ REC AUDIO SIGNAL  ◀ PB AUDIO SIGNAL

IC4001 DETAIL BLOCK DIAGRAM
PV-L453

MAIN IX (POWER SUPPLY) SCHEMATIC DIAGRAM (D)

LINK TO VOLTAGE CHART

LSJB8204

MAIN IX (POWER SUPPLY) SCHEMATIC DIAGRAM
PV-L453

# IC1001 PWM CONTROL IC- DETAIL BLOCK DIAGRAM

Pins (top row): 12 11 10 9 8 7 6 5 4 3 2 1

ERROR AMP

ERROR AMP

DRIVE

13

14

15

16

17

18

19

20 VCC

21

22

23

24

48

VCC 47

46

45

44

43

GND 42

41

40

39

38

VCC 37

PWM CONTROL

PWM CONTROL

PWM CONTROL        DRIVE

TRIANGLE
WAVE
OSCILLATOR

SHORT
CIRCUIT
PROTECTOR

PWM CONTROL        DRIVE

ON/OFF
CONTROL

ERROR AMP

ERROR AMP        PWM CONTROL        DRIVE

Pins (bottom row): 25 26 27 28 29 30 31 32 33 34 35 36

# MAIN X (EVR CONNECTOR) SCHEMATIC DIAGRAM (D)

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

**COMPARISON CHART OF MODELS & MARKS**

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |

SIS GND

| Pin | Signal | | | To M | No |
|---|---|---|---|---|---|
| 1 | GND | | TO M VI | 213 | IRIS_TEST |
| 2 | IRIS_TEST | | TO M IX | 139 | CAMERA_4.5V |
| 3 | GND | | | | |
| 4 | | | TO M V | 195 | EVR_MODE |
| 5 | IRIS_O/C | | TO M V | 165 | EVR_TO_CAM |
| 6 | EVR_MODE | | TO M V | 166 | CAM_TO_EVR |
| 7 | JIG_5V | | TO M V | 164 | EVR_SCK |
| 8 | EVR_TO_CAM | | | | |
| 9 | EVR_VD | | | | |
| 10 | CAM_TO_EVR | | TO M IV | 124 | EVR_VD |
| 11 | JIG_RESET | | TO M V | 167 | JIG_RESET |
| 12 | EVR_SCK | | TO M IV | 111 | CAMERA_Y |
| 13 | NC | | | | |
| 14 | Y_OUT | | | | |
| 15 | M_VCOM | | TO M II | 3 | H-SW |
| 16 | M_B | | TO M II | 57 | LOAD0 |
| 17 | M_G | | TO M II | 56 | LOAD1 |
| 18 | M_R | | TO M I | 60 | S-REEL |
| 19 | SREEL | | | | |
| 20 | SYS_RESET | | TO M II | 69 | PB_CTL |
| 21 | | | TO M I | 59 | S-PHOTO+ |
| 22 | PB_CTL | | TO M II | 31 | CAP_FG_CLK |
| 23 | S-PHOTO | | | | |
| 24 | CAP_FG_CLK | | TO M VII | 227 | FH |
| 25 | TRAP_MONITOR | | TO M VII | 237 | PBIN |
| 26 | FH | | TO M VII | 242 | YNR |
| 27 | PBIN | | TO M VII | 236 | CENV |
| 28 | YNR | | TO M VII | 234 | B-Y_C.EVF |
| 29 | CENV | | | | |
| 30 | H-SW | | TO M VII | 238 | REC_C |
| 31 | GND | | TO M VII | 239 | REC_Y |
| 32 | REC_C | | | | |
| 33 | REC_Y | | | | |
| 34 | GND | | | | |
| 35 | LOAD0 | | | | |
| 36 | LOAD1 | | | | |

WF17

WF15

(TRAP MONITOR)

S301

VIDEO GND

TO TP BOARD(FOR EVR ADJUSTMENT)

| To M | No | Signal |
|---|---|---|
| TO M I | 262 | M_VCOM |
| TO M I | 263 | M_B |
| TO M I | 264 | M_G |
| TO M I | 265 | M_R |

**LINK TO SIGNAL WAVEFORM**

**LSJB8204**

**MAIN X (EVR CONNECTOR) SCHEMATIC DIAGRAM**

**PV-L453**

# LCD I (LCD POWER) SCHEMATIC DIAGRAM

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.



LINK TO VOLTAGE CHART

LSJB8206
LCD I (LCD POWER) SCHEMATIC DIAGRAM
VM-L153/PV-L353/PV-L353-K/PV-L453

# LCD II (LCD DRIVE) SCHEMATIC DIAGRAM

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

VIDEO SIGNAL

LCD PANEL UNIT

FP9002 PT

| 24 | STH1 |
| 23 | OEH |
| 22 | Q2H |
| 21 | CLK1 |
| 20 | CLK2 |
| 19 | CLK3 |
| 18 | GND |
| 17 | B |
| 16 | G |
| 15 | R |
| 14 | VB |
| 13 | RL |
| 12 | STH2 |
| 11 | VEE |
| 10 | VCOM |
| 9 | VGH |
| 8 | VDD |
| 7 | STV2 |
| 6 | OEV |
| 5 | CPV |
| 4 | UD |
| 3 | STV1 |
| 2 | VSS |
| 1 | VGL |

LCD PANEL UNIT

FP9001 LSJSRF24DG

| 24 | STH1 |
| 23 | OEH |
| 22 | Q2H |
| 21 | CLK1 |
| 20 | CLK2 |
| 19 | CLK3 |
| 18 | GND |
| 17 | B |
| 16 | G |
| 15 | R |
| 14 | VB |
| 13 | RL |
| 12 | STH2 |
| 11 | VEE |
| 10 | VCOM |
| 9 | VGH |
| 8 | VDD |
| 7 | STV2 |
| 6 | OEV |
| 5 | CPV |
| 4 | UD |
| 3 | STV1 |
| 2 | VSS |
| 1 | VGL |

TO LCD I  10  LCD_7.5V
TO LCD I  9   LCD_12V
TO LCD I  11  LCD_5V
TO LCD I  8   SW_3V
TO LCD I  1   LCD_LOAD
TO LCD I  2   LCD_CLK
TO LCD I  3   LCD_DATA
TO LCD I  7   LCD_3V
TO LCD I  4   Y
TO LCD I  5   B-Y
TO LCD I  6   R-Y
TO LCD I  12  LCD_-15V
TO LCD I  13  BL_4.5V

IC9001
AN2545FHQ
RGB SIGNAL
PROCESS/LCD
PANEL INDICATOR
CONTROL

IC9002
TA75S558FTEL
(OP-AMP)

IC9003

Q9053
2SB1218A
(BUFFER)

Q9005
(SWITCHING)

Q9004
(SWITCHING)

Q9051
2SD1119
(SWITCHING)

Q9052
2SD1119
(SWITCHING)

PR9051
K5H1022A0003

L9051
SLF6020T680M

T9051
ETJV10ZA17AF

BACK LIGHT UNIT
LSXY0404
BACK LIGHT

WF21  WF19  WF20  WF22

TP9001  TP9002  TP9003  TP9004  TP9005  TP9006  TP9007
TP9501  TP9502

L9006 15U[J]
L9007 15U[J]
L9001 15U[J]
L9005 15U[J]
L9003 15U[J]

**LINK TO VOLTAGE CHART**

**LINK TO SIGNAL WAVEFORM**

**LSJB8206**
**LCD II (LCD DRIVE) SCHEMATIC DIAGRAM**
**VM-L153/PV-L353/PV-L353-K/PV-L453**

# IC9001 RGB SIGNAL PROCESS/LCD PANEL INDICATOR CONTROL IC- DETAIL BLOCK DIAGRAM

# BATTERY CATCHER I SCHEMATIC DIAGRAM (A,B,C)

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

**COMPARISON CHART OF MODELS & MARKS**

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |

**\*2 NOTE:**

WRONG REF. NOS. ARE PRINTED ON SUFFIX(VERSION) NUMBER ②
OF BATTERY CATCHER C.B.A. BY MISTAKE.
ON RUNNING CHANGE BASIS, SUFFIX(VERSION) NUMBER WILL BE
CHANGED FROM ② TO ③ AND THESE REF. NOS. WILL BE CORRECTED.

| Wrong | Correct |
|---|---|
| D1203 | D1213 |
| D1205 | D1215 |
| L1202 | L1212 |

**\*3 NOTE:**

BATTERY CATCHER C.B.A. ARE SUPPLIED INDIVIDUALY AS REPLACEMENT PARTS.
HOWEVER, ONLY THE PARTS ENCLOSED IN DASHED LINES ARE NOT SUPPLIED.
WHEN REPLACING THESE PARTS, REPLACE BATTERY CATCHER C.B.A. INSTEAD OF
INDIVIDUAL PARTS.

◀ REC VIDEO SIGNAL   ◁ PB VIDEO SIGNAL   ◀ REC AUDIO SIGNAL   ◀ PB AUDIO SIGNAL

**TO MAIN C.B.A. FP2**

| | | | |
|---|---|---|---|
| UNREG_GND | 26 | 1 | UNREG_GND |
| UNREG_GND | 25 | 2 | UNREG_GND |
| UNREG_GND | 24 | 3 | UNREG_GND |
| UNREG_GND | 23 | 4 | BACK_UP |
| BACK_UP | 22 | 5 | AUDIO_L |
| AUDIO_L | 21 | 6 | UNREG |
| UNREG | 20 | 7 | UNREG |
| UNREG | 19 | 8 | UNREG |
| UNREG | 18 | 9 | BATT_V |
| UNREG | 17 | 10 | VIDEO_OUT |
| BATT_V | 16 | 11 | GND |
| VIDEO_OUT | 15 | 12 | Y_IN |
| GND | 14 | 13 | 232C_GND |
| Y_IN | 13 | 14 | MICOM_UART_OUT |
| NC | 12 | 15 | MICOM_UART_IN |
| EVF_3.5V | 11 | 16 | PC_5V |
| BL_4.5V | 10 | 17 | SD_CD/DATA3 |
| EVF_SCLK | 9 | 18 | CMD |
| EVF_DATA | 8 | 19 | SD_IN_L |
| EVF_LOAD | 7 | 20 | SD_CLK |
| EVF_GND | 6 | 21 | SD_DATA |
| EVF/LCD_15V | 5 | 22 | SD_WP |
| M_R_OUT | 4 | 23 | CAMERA_3.5V |
| M_G_OUT | 3 | 24 | BL_4.5V |
| M_B_OUT | 2 | 25 | EVF_SCLK |
| M_VCOM | 1 | 26 | EVF_DATA |
| | | 27 | EVF_LOAD |
| | | 28 | EVF_GND |
| | | 29 | EVF/LCD_15V |
| | | 30 | M_R_OUT |
| | | 31 | M_G_OUT |
| | | 32 | M_B_OUT |
| | | 33 | M_VCOM |

**\*3**

| TO BC II | 1 | M_VCOM |
|---|---|---|
| TO BC II | 2 | M_B_OUT |
| TO BC II | 3 | M_G_OUT |
| TO BC II | 4 | M_R_OUT |
| TO BC II | 5 | EVF/LCD_15V |
| TO BC II | 6 | Y_IN |
| TO BC II | 7 | EVF_LOAD |
| TO BC II | 8 | EVF_DATA |
| TO BC II | 9 | EVF_SCLK |
| TO BC II | 10 | BL_4.5V |
| TO BC II | 11 | EVF_3.5V |

R1201 1K

C1202 0.1
C1203 0.1

R4419 560

C4422 2200P

**\*2** D1204 RD20S (20V)

**\*2** D1215 RD20S (20V)

**\*2** D1213 RD12S (12V)

L1201 J0JHC0000054

C1201 PT

**\*2** L1212 J0JHC0000054

⚠ PR1201 K5H402Z00003
4A

R4423 PT

R4420 0

L4421 BK1608HM102

L4422 BK1608HM102

DC JACK

BATTERY
+
-

COIN BATTERY

AVJACK
GND
AUDIO
VIDEO

**\*3**

**LSJB8207**
**BATTERY CATCHER I SCHEMATIC DIAGRAM**
**VM-L153/PV-L353/PV-L353-K**

# BATTERY CATCHER II SCHEMATIC DIAGRAM (A,B,C)

**COMPARISON CHART OF MODELS & MARKS**

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |

◄ REC VIDEO SIGNAL   ◁ PB VIDEO SIGNAL



| TO BC I | 10 | BL_4.5V |
| TO BC I | 1 | M_VCOM |
| TO BC I | 2 | M_B_OUT |
| TO BC I | 3 | M_G_OUT |
| TO BC I | 4 | M_R_OUT |
| TO BC I | 5 | EVF/LCD_15V |
| TO BC I | 11 | EVF_3.5V |
| TO BC I | 6 | Y_IN |
| TO BC I | 7 | EVF_LOAD |
| TO BC I | 8 | EVF_DATA |
| TO BC I | 9 | EVF_SCLK |

R910 1K
R911 1K
R912 1K
R913 1K
R915 0
R916 100
R917 100
R918 100

D901 (7.5V) MAZ80750ML

Q901 2SD1819A (+7V REGULATOR)
Q903 2SD1819A (OVER VOLTAGE DET)

C901 0.1
R902 10K
C902 0.01
R908 3300
R909 5600
C922 1

C913 4R7/16V
C911
C915 0.01

C925 PT
C924 PT
C923 PT

R923 PT   R925 PT   R927 PT
R924 PT   R926 PT   R928 PT

C917 0.47  C918 0.47  C919 0.47  C921 0.47

IC901
LV4150WM-MPB
(EVF SIGNAL PROCESS)

L901 15U[J]
C903 10/6.3V

R901 0
Q902 2SD1819A (BUFFER)
R906 1K
C904 1
C905 1
C906 1
C907 1
C908 0.47
C909 0.01
C910 0.33
R907 1K

L902 PT

R920 0
R921 0

R919 PT
Q904 UN5212 (BACK LIGHT DRIVE)

C912 0.1
C914 6800P
R914 10K
C916 1
R922 0
C920 PT

R903 1K
R904 1K
R905 1K

**FP901 (TO EVF UNIT)**

| 22 | BL_4.5V |
| 21 | BL_SW |
| 20 | VCOM |
| 19 | CKV1 |
| 18 | CKV2 |
| 17 | STV |
| 16 | XSTV |
| 15 | XENB |
| 14 | ENB |
| 13 | CKH2 |
| 12 | XDSG |
| 11 | DSG |
| 10 | B |
| 9 | R |
| 8 | G |
| 7 | VDD |
| 6 | DSD |
| 5 | CKH1 |
| 4 | VSS |
| 3 | VSS |
| 2 | STH |
| 1 | XSTH |

**LINK TO VOLTAGE CHART**

# BATTERY CATCHER I SCHEMATIC DIAGRAM (D)

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,
USE ONLY THE SPECIFIED PARTS.

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

**COMPARISON CHART OF MODELS & MARKS**

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |

**\*2 NOTE:**
WRONG REF. NOS. ARE PRINTED ON SUFFIX(VERSION) NUMBER ②
OF BATTERY CATCHER C.B.A. BY MISTAKE.
ON RUNNING CHANGE BASIS, SUFFIX(VERSION) NUMBER WILL BE
CHANGED FROM ② TO ③ AND THESE REF. NOS. WILL BE CORRECTED.

| Wrong | Correct |
|---|---|
| D1203 | D1213 |
| D1205 | D1215 |
| L1202 | L1212 |

**\*3 NOTE:**
BATTERY CATCHER C.B.A. ARE SUPPLIED INDIVIDUALY AS REPLACEMENT PARTS.
HOWEVER, ONLY THE PARTS ENCLOSED IN DASHED LINES ARE NOT SUPPLIED.
WHEN REPLACING THESE PARTS, REPLACE BATTERY CATCHER C.B.A. INSTEAD OF
INDIVIDUAL PARTS.



LINK TO VOLTAGE CHART

**LSJB8207**
**BATTERY CATCHER I SCHEMATIC DIAGRAM**
**PV-L453**

# BATTERY CATCHER II SCHEMATIC DIAGRAM (D)

NOTE: For placing a purchase order of the parts, be sure to use the part number listed in the parts list. Do not use the part number on this diagram.

NOTE: FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

**COMPARISON CHART OF MODELS & MARKS**

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |

REC VIDEO SIGNAL    PB VIDEO SIGNAL

TO BC I  10  BL_4.5V
TO BC I  1  M_VCOM
TO BC I  2  M_B_OUT
TO BC I  3  M_G_OUT
TO BC I  4  M_R_OUT
TO BC I  5  EVF/LCD_15V
TO BC I  11  EVF_3.5V
TO BC I  6  Y_IN

R910 1K
R911 1K
R912 1K
R913 1K
R915 0
R916 100
R917 100
R918 100

D901 (7.5V) MAZ80750ML

Q901 2SD1819A (+7V REGULATOR)
Q903 2SD1819A (OVER VOLTAGE DET)

C901 0.1
R902 10K
C902 0.01
R908 3300
R909 5600

C913 4R7/16V
C911 PT
C925 PT
C924 PT
C923 PT
R923 PT  R925 PT  R927 PT
R924 PT  R926 PT  R928 PT

C922 1
C915 0.01
C917 0.47  C918 0.47  C919 0.47  C921 0.47

48 47 46 45 44 43 42 41 40 39 38 37 36 35 34 33

L901 15U[J]
C903 10/6.3V

Q902 2SD1819A (BUFFER)
R901 0
R906 1K
R907 1K

C904 1
C905 1
C906 1
C907 1
C908 0.47
C909 0.01
C910 0.33

IC901 LV4150WM-MPB (EVF SIGNAL PROCESS)

49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64

32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17

R920 0
R921 0

L902 PT

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

R922 0
C912 0.1
C914 6800P
R914 10K
C916 1
C920 PT

R919 PT
Q904 UN5212 (BACK LIGHT DRIVE)

**FP901    (TO EVF UNIT)**

| 22 | BL_4.5V |
|---|---|
| 21 | BL_SW |
| 20 | VCOM |
| 19 | CKV1 |
| 18 | CKV2 |
| 17 | STV |
| 16 | XSTV |
| 15 | XENB |
| 14 | ENB |
| 13 | CKH2 |
| 12 | XDSG |
| 11 | DSG |
| 10 | B |
| 9 | R |
| 8 | G |
| 7 | VDD |
| 6 | DSD |
| 5 | CKH1 |
| 4 | VSS |
| 3 | VSS |
| 2 | STH |
| 1 | XSTH |

TO BC I  7  EVF_LOAD  R903 1K
TO BC I  8  EVF_DATA  R904 1K
TO BC I  9  EVF_SCLK  R905 1K

LINK TO VOLTAGE CHART

**LSJB8207**
**BATTERY CATCHER II SCHEMATIC DIAGRAM**
**PV-L453**

# IC901 EVF SIGNAL PROCESS IC- DETAIL BLOCK DIAGRAM



IC901 DETAIL BLOCK DIAGRAM
VM-L153/PV-L353/PV-L353-K/PV-L453

# HEAD AMP SCHEMATIC DIAGRAM

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

**COMPARISON CHART
OF MODELS & MARKS**

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |

**"FOR REFERENCE ONLY"**

NOTE:
HEAD AMP IS NOT SERVICEABLE AND IS
SUPPLIED AS A CYLINDER UNIT ONLY FOR REPLACEMENT.

◄━ REC VIDEO SIGNAL      ⇦ PB VIDEO SIGNAL



**HEAD AMP SCHEMATIC DIAGRAM
VM-L153/PV-L353/PV-L353-K/PV-L453**

**COMPARISON CHART OF MODELS & MARKS**

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |

## LCD SHAFT UNIT

**"FOR REFERENCE ONLY"**

NOTE:
LCD SHAFT UNIT IS NOT SERVICEABLE AND IS
SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.

## MICROPHONE UNIT

**"FOR REFERENCE ONLY"**

NOTE:
MICROPHONE UNIT IS NOT SERVICEABLE AND IS
SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.

## CCD C.B.A.

**"FOR REFERENCE ONLY"**

NOTE:
CCD C.B.A. IS NOT SERVICEABLE AND IS SUPPLIED
AS UNIT ONLY FOR REPLACEMENT.



**LCD SHAFT UNIT**
**MICROPHONE UNIT**
**CCD C.B.A.**
**VM-L153/PV-L353/PV-L353-K/PV-L453**

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

**COMPARISON CHART OF MODELS & MARKS**

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |

## TOP OPERATION UNIT

**"FOR REFERENCE ONLY"**

NOTE:
TOP OPERATION UNIT IS NOT SERVICEABLE AND IS
SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.

A,B,C (TO MAIN C.B.A. FP12)
D (TO MAIN C.B.A. FP12)

GND 6
IRQ0 5
SCAN4 4
VCC 3
2
AD2 1

RTNSW41
EJECT

R41

SW44 STOP
SW45 PLAY — R45
SW46 REW — R46
SW47 FF — R47
SW49 LIGHT — R50

## SIDE L OPERATION UNIT

**"FOR REFERENCE ONLY"**

NOTE:
SIDE L OPERATION UNIT IS NOT SERVICEABLE AND IS
SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.

A,B,C (TO MAIN C.B.A. FP13)
D (TO MAIN C.B.A. FP13)

GND 16
DEW 15
SCAN3 14
SCAN1 13
PHOTO MODE 12
GND 11
SCNA2 10
GND 9
POWER SW 8
REC SW 7
GND 6
AD4 5
VCC 4
GND 3
V REF H 2
ZOOM COM 1

DEW SENSER

POWER SW

DSC MODEL
PHOTO
CAMERA
OFF
VCR

SW9 REC
R49 ZOOM
R11

SW11 UP
SW12 DOWN — R12
SW13 MENU — R16
SW14 MANUAL FOCUS — R17

## MECHANISM FPC UNIT

**"FOR REFERENCE ONLY"**

NOTE:
MECHANISM FPC UNIT IS NOT SERVICEABLE AND IS
SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.

(TO MAIN C.B.A. FP7) A,B,C
(TO MAIN C.B.A. FP7) D

| GND | 1 |
| SAFETY TAB BROKEN(H) | 2 |
| MODE SW POSITION 2 | 3 |
| MODE SW POSITION 1 | 4 |
| GND | 5 |
| REG +4.5V | 6 |
| GND | 7 |
| SUPPLY REEL PULSE | 8 |
| CASSETTE DOWN(L) | 9 |
| GND | 10 |
| GND | 11 |
| SENSOR LED ON(H) | 12 |
| GND | 13 |
| SUPPLY PHOTO TR(L) | 14 |

SAFETY TAB SW

MODE SELECT SW

CASSETTE UP/DOWN SW

SENEOR LED

(SUPPLY REEL SENSOR)

(SUPPLY PHOTO TR)

**TOP OPERATION UNIT
SIDE L OPERATION UNIT
MECHANISM FPC UNIT
VM-L153/PV-L353/PV-L353-K/PV-L453**

# INTERCONNECTION SCHEMATIC DIAGRAM

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

**COMPARISON CHART OF MODELS & MARKS**

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |

**MAIN C.B.A.**

**LENS UNIT** — FP9 (22 Pins)

**CCD C.B.A.** — ⑮⑤ (12 Pins) FP8

**BATTERY CATCHER C.B.A.**
- (26 Pins) A,B,C
- (37 Pins) D — FP2

DC JACK
A/V JACK

D
PC JACK
SD CARD SLOT

FP901 ㉞ (22 Pins) **EVF MAIN UNIT**

**MICROPHONE UNIT**
MIC — (6 Pins) FP11

**LAMP SOCKET UNIT**
LAMP — (2 Pins) ◯ TP5001  ◯ TP5002

**MECHANISM CHASSIS ASS'Y**
- **AC HEAD UNIT** (11 Pins)
- **CAPSTAN UNIT** (15 Pins) — (28 Pins) FP1
- **LOADING MOTOR UNIT** (2 Pins)
- **CYLINDER UNIT** (18 Pins) — (28Pins) FP6
- **HEAD AMP C.B.A.** FP3501 (12 Pins)
- **MECHANISM FPC UNIT** — (14 Pins) FP7

FP13 — (16 Pins) **SIDE L OPERATION UNIT**

FP12 — (6 Pins) **TOP OPERATION UNIT**

S301 36 Pins ⇒ TO TP BOARD (FOR EVR ADJUSTMENT)

**LCD SHAFT UNIT** FP9101 — (21 Pins) — **LCD C.B.A.** FP1201 ... FP9001 — (24 Pins) — **LCD PANEL UNIT**

FP10 — (26 Pins) FP9101

PT FP9002 — (24 Pins)

**INTERCONNECTION SCHEMATIC DIAGRAM**
**VM-L153/PV-L353/PV-L353-K/PV-L453**

## 8.2. MAIN SCHEMATIC DIAGRAMS (Models: VM-L153/PV-L353/PV-L353-K)

### MAIN I (CONNECTOR) SCHEMATIC DIAGRAM (A,B,C)

**TO TOP OPERATION UNIT** FP12

| | | | |
|---|---|---|---|
| GND | 6 | R394 0 | |
| IRQ0 | 5 | R388 100 | IRQ0 47 TO M II |
| SCAN4 | 4 | R387 100 | SCAN4 52 TO M II |
| VCC | 3 | R385 100 | SYS_REG_4.5V 37 TO M IX |
| NC | 2 | | |
| AD2 | 1 | R393 100 | AD2 53 TO M II |

**TO SIDE L OPERATION UNIT** FP13

| | | | |
|---|---|---|---|
| GND | 16 | R383 0 | |
| DEW | 15 | | DEW 54 TO M II |
| SCAN3 | 14 | | SCAN3 51 TO M II |
| SCAN1 | 13 | | SCAN1 49 TO M II |
| NC | 12 | | |
| GND | 11 | | |
| SCNA2 | 10 | | SCAN2 50 TO M II |
| GND | 9 | | |
| POWER SW | 8 | | POWER_SW 48 TO M II |
| REC SW | 7 | | REC_SW 46 TO M II |
| GND | 6 | R384 100 | |
| AD4 | 5 | | AD4 55 TO M II |
| VCC | 4 | | |
| GND | 3 | R391 0 | |
| V REF H | 2 | | C_MICOM_3.5V 140 TO M V |
| ZOOM COM | 1 | | ZOOMCOM 171 TO M V |

**TO LCD SHAFT UNIT FP9101** FP10

| | | | |
|---|---|---|---|
| SP- | 26 | | SP- 252 TO M VIII |
| SP+ | 25 | R1611 68K | SP+ 253 TO M VIII |
| RVS_SW | 24 | | LCD_MODE 34 TO M II |
| REG_3.5V | 23 | R1610 27K | CAMERA_3.5V 138 TO M IX |
| OPEN_SW | 22 | | |
| LCD_R-Y | 21 | | R-Y C.EVF 233 TO M VII |
| LCD_B-Y | 20 | | B-Y C.EVF 234 TO M VII |
| LCD_Y | 19 | | EVF_Y_OUT 228 TO M VII |
| GND | 18 | R1612 4700 R1613 4700 | |
| GND | 17 | | |
| GND | 16 | | |
| BL_GND | 15 | | |
| BL_GND | 14 | | |
| BL_GND | 13 | | |
| BL_GND | 12 | | |
| LCD_DATA | 11 | R1602 100 | |
| LCD_CLK | 10 | R1601 100 | |
| LCD_IC_STB | 9 | R1603 100 | LCD_IC_STB 176 TO M V |
| LCD_ON-H | 8 | | LCD_ON-H 35 TO M IX |
| UNREG | 7 | | UNREG 38 TO M II |
| BL_4.5V | 6 | | BL_4.5V 261 TO M IX |
| BL_4.5V | 5 | | |
| BL_4.5V | 4 | | |
| BL_4.5V | 3 | | |
| LCD_-15V | 2 | | LCD_-15V 259 TO M IX |
| EVF/LCD_15V | 1 | | EVF/LCD_15V 260 TO M IX |

**PT** P1

| | | |
|---|---|
| EVF_R-Y | 2 |
| EVF_B-Y | 1 |

**TO MECHANISM FPC UNIT** FP7

| | | | |
|---|---|---|---|
| S-PHOTO+ | 14 | | S-PHOTO+ 59 TO M II,M X |
| S-PHOTO | 13 | | |
| S.LED-A | 12 | | S.LED-A 58 TO M II |
| S.LED-C | 11 | | |
| GND | 10 | | |
| C.DOWN | 9 | | C.DOWN 61 TO M II |
| S-REEL | 8 | | S-REEL 60 TO M II,M X |
| GND | 7 | | |
| REG4.5V | 6 | | REG4.5V 62 TO M II |
| POS.COM | 5 | | |
| POS1 | 4 | | POS1 63 TO M II |
| POS2 | 3 | | POS2 64 TO M II |
| S-TAB | 2 | | S-TAB 65 TO M II |
| GND | 1 | | |

**TO MICROPHONE UNIT FJ4302** FP11

| | | | |
|---|---|---|---|
| FLAME_GND | 6 | | |
| FLAME_GND | 5 | | |
| AUDIO_GND | 4 | | |
| AUDIO_GND | 3 | | |
| MIC_OUT | 2 | | MIC_OUT 244 TO M VIII |
| AUDIO_REG_4.5V | 1 | | AUDIO_REG_4.5V 243 TO M IX |

TP5002 LIGHT_UNREG    TP5001 LIGHT_GND

D1103 MA3120WA (12V)

TO M IX 256 LIGHT_UNREG

FP2 (TO BATT CATCH)

| | | |
|---|---|---|
| | 26 | UNREG_G |
| | 25 | UNREG_G |
| | 24 | UNREG_G |
| | 23 | UNREG_G |
| TO M II 36 BACK_UP | 22 | BACK_UP |
| TO M VIII 246 AUDIO_OUT | 21 | AUDIO_L |
| TO M IX 255 UNREG_POW | 20 | UNREG |
| | 19 | UNREG |
| | 18 | UNREG |
| | 17 | UNREG |
| TO M IX 254 BATT_V | 16 | BATT_V |
| TO M VII 232 VIDEO_OUT | 15 | VIDEO_OU |
| | 14 | GND |
| | 13 | Y_IN |
| | 12 | NC |
| | 11 | EVF_3.5V |
| TO M IX 257 EVF_4.5V | 10 | BL_4.5V |
| TO M V 174 EVF_CLK R1605 100 | 9 | EVF_SCLK |
| TO M V 173 EVF&LCD_DATA R1604 100 | 8 | EVF_DATA |
| TO M V 180 EVF_IC_STB R1606 100 | 7 | EVF_LOAD |
| | 6 | EVF_GND |
| | 5 | EVF/LCD |
| TO M X 265 M_R | 4 | M_R_OUT |
| TO M X 264 M_G | 3 | M_G_OUT |
| TO M X 263 M_B | 2 | M_B |
| TO M X 262 M_VCOM | 1 | M_VCOM |

WF9  WF10  FP6 (TO CYLI)

| | | | |
|---|---|---|---|
| TO M VII 235 ENV-OUT | 1 | ENV-OUT | |
| TO M VII 240 REC-IN | 2 | REC-IN | |
| TO M II 1 AT-OUT | 3 | AT-OUT | |
| TO M II 4 A/V-DREC_H R3186 2200 | 4 | V-DREC_H | |
| TO M VII 241 HA-4.5V | 5 | HA-4.5V | |
| TO M II 3 H-SW | 6 | H-SW | |
| TO M II 2 FLY-E_L | 7 | FLY-E_L | |
| TO M IX 231 VIDEO_REG_4.5V | 8 | FLY-E-4.5V | |
| | 9 | HA-GND | |
| | 10 | HA-GND | |
| TO M II 30 SYS_VREF | 11 | FG- | |
| TO M III 86 FG+_CYL | 12 | FG+ | |
| TO M III 89 VH-_PG | 13 | VH-(PG) | |
| TO M III 90 VH+_PG | 14 | VH+(PG) | |
| TO M III 87 PG_CYL | 15 | PG | |
| TO M III 92 VH-_H3 | 16 | VH-(H3) | |
| TO M III 96 H2+_CYL | 17 | H2+ | |
| | 18 | VH+(H2) | |
| TO M III 95 H2-_CYL | 19 | H2- | |
| TO M III 94 H3+_CYL | 20 | H3+ | |
| TO M III 91 VH+_H1_H2_H3 | 21 | VH(H3) | |
| TO M III 93 H3-_CYL | 22 | H3- | |
| TO M III 98 H1+_CYL | 23 | H1+ | |
| | 24 | VH+(H1) | |
| TO M III 97 H1-_CYL | 25 | H1- | |
| TO M III 100 M1_CYL | 26 | M1 | |
| TO M III 88 M2_CYL | 27 | M2 | |
| TO M III 99 M3_CYL | 28 | M3 | |

C3156 PT  C3155 PT  C3154 PT

**353-K)**

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

**COMPARISON CHART OF MODELS & MARKS**

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |

◄— REC VIDEO SIGNAL    ⇦ PB VIDEO SIGNAL    ◄— REC AUDIO SIGNAL    ⇦ PB AUDIO SIGNAL

**FP9    (TO LENS UNIT)**

| TO M V | 182 | F.ENC | | 22 | F.ENC |
| TO M IX | 200 | AF_4.5V | | 21 | AF_4.5V |
| TO M V | 183 | Z.ENC | | 20 | Z.ENC |
| TO M V | 184 | LED_CONT | | 19 | LED_CONT |
| TO M V | 175 | THERMO | | 18 | THERMO |
| | | | | 17 | THERMO_GND |
| TO M V | 192 | ZOOM_MT2 | | 16 | ZOOM_MT2 |
| TO M V | 189 | ZOOM_MT1 | | 15 | ZOMM_MT1 |
| TO M V | 191 | ZOOM_MT4 | | 14 | ZOOM_MT4 |
| TO M V | 190 | ZOOM_MT3 | | 13 | ZOOM_MT3 |
| TO M V | 210 | ALC_CONT+ | | 12 | ALC_CONT+ |
| TO M VI | 127 | VREF_L | | 11 | ALC_CONT- |
| | | | | 10 | ALC_MAIN- |
| TO M V | 209 | HOLE_OUT- | | 9 | HOLE_OUT- |
| TO M V | 207 | HOLE_IN- | | 8 | HOLE_IN- |
| TO M V | 208 | HOLE_OUT+ | | 7 | HOLE_OUT+ |
| TO M V | 206 | HOLE_IN+ | | 6 | HOLE_IN+ |
| TO M V | 202 | ALC_MAIN+ | | 5 | ALC_MAIN+ |
| TO M V | 188 | FOCUS_MT2 | | 4 | FOCUS_MT2 |
| TO M V | 185 | FOCUS_MT3 | | 3 | FOCUS_MT3 |
| TO M V | 187 | FOCUS_MT4 | | 2 | FOCUS_MT4 |
| TO M V | 186 | FOCUS_MT1 | | 1 | FOCUS_MT1 |

TP5001
LIGHT_GND

D1103
MA3120WA
(12V)

**FP2    (TO BATTERY CATCHER C.B.A.)**

| 26 | UNREG_GND |
| 25 | UNREG_GND |
| 24 | UNREG_GND |
| 23 | UNREG_GND |
| 22 | BACK_UP |
| 21 | AUDIO_L |
| 20 | UNREG |
| 19 | UNREG |
| 18 | UNREG |
| 17 | UNREG |
| 16 | BATT_V |
| 15 | VIDEO_OUT |
| 14 | GND |
| 13 | Y_IN |
| 12 | NC |
| 11 | EVF_3.5V |
| 10 | BL_4.5V |
| 9 | EVF_SCLK |
| 8 | EVF_DATA |
| 7 | EVF_LOAD |
| 6 | EVF_GND |
| 5 | EVF/LCD_15V |
| 4 | M_R_OUT |
| 3 | M_G_OUT |
| 2 | M_B_OUT |
| 1 | M_VCOM |

R1605  100
R1604  100
R1606  100

**FP8    (TO CCD C.B.A. FP601)**

| TO M VI | 220 | CCD_15V | | 1 | 15V |
| TO M VI | 214 | CCD_SUB | | 2 | SUB |
| TO M VI | 223 | CCD_-8V | | 3 | -8V |
| TO M VI | 221 | V1_DRIVE_OUT | | 4 | V1 |
| TO M VI | 222 | V2_DRIVE_OUT | | 5 | V2 |
| TO M VI | 219 | V3_DRIVE_OUT | | 6 | V3 |
| TO M VI | 218 | V4_DRIVE_OUT | | 7 | V4 |
| TO M IV | 215 | CCD_RESET | | 8 | RESET |
| TO M IV | 216 | CCD_H1 | | 9 | H1 |
| TO M IV | 217 | CCD_H2 | | 10 | H2 |
| | | | | 11 | GND |
| TO M VI | 225 | CCDOUT | ◄— | 12 | CCDOUT |

**WF1**

**WF16**

TP6205    TP6206

**WF9**    **WF10**

**FP6   (TO CYLINDER UNIT)**

| 1 | ENV-OUT |
| 2 | REC-IN |
| 3 | AT-OUT |
| 4 | V-DREC_H |
| 5 | HA-4.5V |
| 6 | H-SW |
| 7 | FLY-E_L |
| 8 | FLY-E-4.5V |
| 9 | HA-GND |
| 10 | HA-GND |
| 11 | FG- |
| 12 | FG+ |
| 13 | VH-(PG) |
| 14 | VH+(PG) |
| 15 | PG |
| 16 | VH-(H3) |
| 17 | H2+ |
| 18 | VH+(H2) |
| 19 | H2- |
| 20 | H3+ |
| 21 | VH(H3) |
| 22 | H3- |
| 23 | H1+ |
| 24 | VH+(H1) |
| 25 | H1- |
| 26 | M1 |
| 27 | M2 |
| 28 | M3 |

2200

C3155    C3154
PT    PT

**FP1    (TO AC HEAD /CAPSTAN UNIT)**

| | | | | 1 | CTL(GND) |
| TO M II | 66 | CTL_- | | 2 | CTL(-) |
| TO M II | 67 | CTL_+ | | 3 | CTL(+) |
| TO M VIII | 251 | CTLE_+ | | 4 | CTLE(+) |
| | | | | 5 | CTLE(G) |
| | | | | 6 | AE(GND) |
| TO M VIII | 250 | AE_H | | 7 | AE(H) |
| TO M VIII | 249 | AUD_R1 | | 8 | AUD(R1) |
| TO M VIII | 248 | AUD_R2 | | 9 | AUD(R2) |
| TO M VIII | 247 | AUD_P | ⇦ | 10 | AUD(P) |
| | | | | 11 | AUD_GND |
| | | | | 12 | MRGND |
| TO M III | 70 | VMR_CAP | | 13 | VMR |
| TO M II | 32 | FG+_CAP | | 14 | FG+ |
| | | | TP6217 | 15 | FG2+ |
| TO M III | 71 | VH-_CAP | | 16 | VH- |
| TO M III | 72 | H1+_CAP | | 17 | H1+ |
| TO M III | 73 | H1-_CAP | | 18 | H1- |
| TO M III | 74 | H2+_CAP | | 19 | H2+ |
| TO M III | 75 | H2-_CAP | | 20 | H2- |
| TO M III | 76 | H3+_CAP | | 21 | H3+ |
| TO M III | 77 | H3-_CAP | | 22 | H3- |
| TO M III | 78 | VH+_CAP | | 23 | VH+ |
| TO M III | 79 | M2_CAP | | 24 | M2 |
| TO M III | 80 | M3_CAP | | 25 | M3 |
| TO M III | 81 | M1_CAP | | 26 | M1 |
| TO M II | 57 | LOAD0 | | 27 | LOAD0 |
| TO M II | 56 | LOAD1 | | 28 | LOAD1 |

TP6205

TP5003    TP5004

**LINK TO VOLTAGE CHART**

**LINK TO SIGNAL WAVEFORM**

**LSJB8205**
**MAIN I (CONNECTOR) SCHEMATIC DIAGRAM**
**VM-L153/PV-L353/PV-L353-K**

# MAIN II (SYSTEM CONTROL/SERVO) SCHEMATIC DIAGRAM (A,B,C)

**\*1** NOTE
TO DEFEAT THE SAFETY FUNCTION, CONNECT A DIODE BETWEEN TP6011 AND TP6012, OR SELECT THE H.
SAFETY DEFEAT IN SERVICE MODE. REFER TO NOTE1 OF "EXTENSION CABLES FOR SERVICE" IN SERVICE
NOTES SECTION FOR MORE INFORMATION.

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

### COMPARISON CHART OF MODELS & MARKS

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |

### IC6001 KEY VOLTAGE CHART
(VCR MODE)

| TERMINAL VOLTAGE | OPERATION BUTTON | |
|---|---|---|
| | KEY DATA 2 (PIN 84) | KEY DATA 4 (PIN 81) |
| 3.42~3.78V | --- | --- |
| 2.52~2.88V | FF/SEARCH | --- |
| 1.62~1.98V | REW/SEARCH | AUTO TRACKING |
| 0.72~1.08V | PLAY/STILL | DOWN |
| 0~0.18V | STOP | UP |

(CAMERA MODE)

| TERMINAL VOLTAGE | OPERATION BUTTON | |
|---|---|---|
| | KEY DATA 2 (PIN 84) | KEY DATA 4 (PIN 81) |
| 3.42~3.78V | LIGHT | --- |
| 2.52~2.88V | EIS | MANUAL FOCUS/SET |
| 1.62~1.98V | FADE | MENU |
| 0.72~1.08V | STILL/STROBE | DOWN/NEAR |
| 0~0.18V | BACKLIGHT | UP/FAR |

### IC6001 KEY VOLTAGE CHART
(LCD PANEL MODE) (SW9101,9102)

| TERMINAL VOLTAGE (Pin 79 of IC6001) | LCD PANEL MODE | |
|---|---|---|
| | NORMAL/REVERSE | OPEN/CLOSE |
| 0V | NORMAL | CLOSE |
| 2.6V | NORMAL | OPEN |
| 1.1V | REVERSE | CLOSE |
| 3.5V | REVERSE | OPEN |

**LINK TO SIGNAL WAVEFORM**

**LINK TO VOLTAGE CHART**

**LSJB8205**
**MAIN II (SYSTEM CONTROL/SERVO) SCHEMATIC DIAGRAM**
**VM-L153/PV-L353/PV-L353-K**

# MAIN III (CYLINDER/ CAPSTAN DRIVE) SCHEMATIC DIAGRAM (A,B,C)
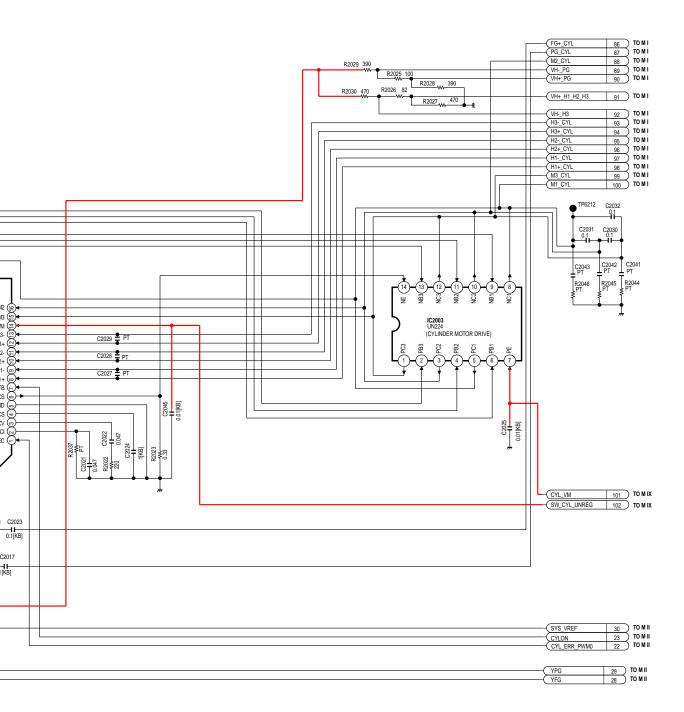
NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

**COMPARISON CHART
OF MODELS & MARKS**

| MODEL | MARK |
| --- | --- |
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |

| Signal | Pin | |
| --- | --- | --- |
| FG+_CYL | 86 | TO M I |
| PG_CYL | 87 | TO M I |
| M2_CYL | 88 | TO M I |
| VH-_PG | 89 | TO M I |
| VH+_PG | 90 | TO M I |
| VH+_H1_H2_H3 | 91 | TO M I |
| VH-_H3 | 92 | TO M I |
| H3-_CYL | 93 | TO M I |
| H3+_CYL | 94 | TO M I |
| H2-_CYL | 95 | TO M I |
| H2+_CYL | 96 | TO M I |
| H1-_CYL | 97 | TO M I |
| H1+_CYL | 98 | TO M I |
| M3_CYL | 99 | TO M I |
| M1_CYL | 100 | TO M I |

R2029 390
R2025 100
R2028 390
R2030 470
R2026 82
R2027 470

TP6212
C2032 0.1
C2031 0.1
C2030 0.1
C2043 PT
C2042 PT
C2041 PT
R2046 PT
R2045 PT
R2044 PT

14 NE
13 NB3
12 NC3
11 NB2
10 NC2
9 NB1
8 NC1

**IC2003**
UN224
(CYLINDER MOTOR DRIVE)

1 PC3
2 PB3
3 PC2
4 PB2
5 PC1
6 PB1
7 PE

C2029 PT
C2028 PT
C2027 PT

C2045 0.01[KB]
C2025 0.01[KB]

R2037 PT
C2021 0.047
R2022 220
C2022 0.047
C2024 1[KB]
R2023 0.33

C2023 0.1[KB]
C2017 [KB]

| CYL_VM | 101 | TO M IX |
| SW_CYL_UNREG | 102 | TO M IX |

| SYS_VREF | 30 | TO M II |
| CYLON | 23 | TO M II |
| CYL_ERR_PWM0 | 22 | TO M II |

| YPG | 29 | TO M II |
| YFG | 28 | TO M II |

**LINK TO VOLTAGE CHART**
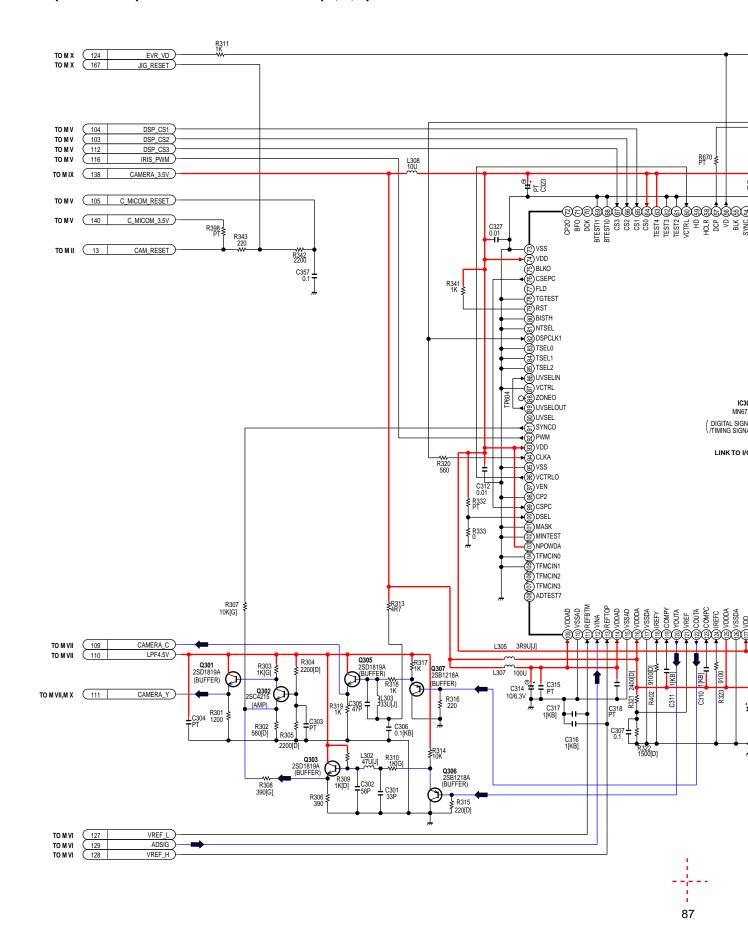
**LSJB8205**
**MAIN III (CYLINDER/CAPSTAN DRIVE) SCHEMATIC DIAGRAM**
**VM-L153/PV-L353/PV-L353-K**

# MAIN IV (CAMERA I) SCHEMATIC DIAGRAM (A,B,C)

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

**COMPARISON CHART OF MODELS & MARKS**

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |

← REC VIDEO SIGNAL

| | | |
|---|---|---|
| CAMERA_VD | 126 | TO M V |
| CCD_H2 | 217 | TO M I |
| CCD_H1 | 216 | TO M I |
| CCD_RESET | 215 | TO M I |
| ADS_CLK | 107 | TO M VI |
| DS1 | 108 | TO M VI |
| DS2 | 113 | TO M VI |
| DSP_3.5V | 140 | TO M V,M VI |
| MICOM_CLK | 106 | TO M V |
| SUB | 118 | TO M VI |
| CCD_V1 | 119 | TO M VI |
| CCD_V2 | 120 | TO M VI |
| CCD_V3 | 121 | TO M VI |
| CCD_V4 | 122 | TO M VI |
| CCD_CH1 | 123 | TO M VI |
| CCD_CH2 | 125 | TO M VI |
| CPOB | 130 | TO M VI |
| PBLK | 131 | TO M VI |
| DCC | 117 | TO M VI |
| DSP_CS4 | 153 | TO M V |
| DSP_CS0 | 139 | TO M V |
| ADR[5] | 132 | TO M V |
| ADR[4] | 133 | TO M V |
| ADR[3] | 134 | TO M V |
| ADR[2] | 135 | TO M V |
| ADR[1] | 136 | TO M V |
| ADR[0] | 137 | TO M V |
| NWE | 115 | TO M V |
| NRE | 155 | TO M V |
| BEND | 114 | TO M V |
| DIS_IRQ | 154 | TO M V |
| DB[7] | 163 | TO M V |
| DB[6] | 162 | TO M V |
| DB[5] | 161 | TO M V |
| DB[4] | 160 | TO M V |
| DB[3] | 159 | TO M V |
| DB[2] | 158 | TO M V |
| DB[1] | 157 | TO M V |
| DB[0] | 156 | TO M V |

C615 0.01
R684 PT
R643 0
R641 0
C661 PT
R670 PT
C605 22/6.3V
C326 0.01
C613 0.1
TG
R678 PT
9.54545MHz
TP601
for SERVICE
TP601S
R400 330
R608 100
R625 10K
R623 4700
R609 680
R624 PT
C606 0.1
R617 120
C611 12P
C607 15P
C620 PT
C619 2P
R616 1M
X601 H0A286500001
C618 8P[DC]
C320 0.01
C319 0.01
C321 PT
C309 10/6.3V

IC301
MN673242
( DIGITAL SIGNAL PROCESS /TIMING SIGNAL GENERATOR )

**LINK TO I/O CHART**

R321 2400[D]
R402
C311 11KB
C310 11[KB]
R323 9100
R322 1500[D]

**LINK TO VOLTAGE CHART**
**LSJB8205**
**MAIN IV (CAMERA I) SCHEMATIC DIAGRAM**
**VM-L153/PV-L353/PV-L353-K**

# MAIN V (CAMERA II/LENS DRIVE) SCHEMATIC DIAGRAM (A,B,C)

TO M IV  140  DSP_3.5V
R399 0
L310 PT
C330 PT

TO M IX  138  CAMERA_3.5V

TO M IV  137  ADR[0]  ADR[0]
TO M IV  136  ADR[1]  ADR[1]
TO M IV  135  ADR[2]  ADR[2]
TO M IV  134  ADR[3]  ADR[3]
TO M IV  133  ADR[4]  ADR[4]
TO M IV  132  ADR[5]  ADR[5]
TO M IV  156  DB[0]  DB[0]
TO M IV  157  DB[1]  DB[1]
TO M IV  158  DB[2]  DB[2]
TO M IV  159  DB[3]  DB[3]
TO M IV  160  DB[4]  DB[4]
TO M IV  161  DB[5]  DB[5]
TO M IV  162  DB[6]  DB[6]
TO M IV  163  DB[7]  DB[7]
TO M IV  139  DSP_CS0
TO M IV  104  DSP_CS1
TO M IV  103  DSP_CS2
TO M IV  112  DSP_CS3
TO M IV  105  C_MICOM_RESET
TO M IV  106  MICOM_CLK
TO M IV  153  DSP_CS4

C331 0.1

R700 0

25 DATA6
24 DATA5
23 DATA4
22 DATA3
21 DATA2
20 DATA1
19 DATA0
18 VSS/VPP
17 NC
16 NC
15 ADRS5
14 ADRS4
13 ADRS3
12 ADRS2
11 ADRS1
10 ADRS0
9 NC
8 CAM CS
7 VSS
6 VDD
5 DAC SCK
4 DAC SO
3 DAC LD
2 VCR SCK

26 DATA7
27 CS0
28 CS1
29 CS2
30 CS3
31 RESET
32 XT1
33 NC
34 VDD
35 X2
36 X1
37 VSS
38 CLKOUT
39 CS4
40 EE CS

R325 10K
C333 0.1

IC308
C2DBJG000120
(CAMERA MICROCONTROLLER)

LINK TO I/O CHART

TO M I  180  EVF_IC_STB  41 EVF CS
TO M I  176  LCD_IC_STB  42 LCD CS
43 NC
44 NC
TO M IV  155  NRE  45 RE
TO M IV  115  NWE  46 WE
47 ZDC0
48 ZDC1
49 ZDC2
50 ZD0

51 ZD1
52 ZD2
53 ZD3
54 NC
55 VDD
56 VSS
57 FDC0
58 FDC1
59 FDC2
60 FD0
61 FD1
62 FD2
63 FD3
64 NC
65 TEST CLK
66 TEST DATA
67 TEST
68 LED CNT
69 ZENC
70 FENC
71 AVDD
72 AVSS
73 AVREF
74 ZOOM AD

C335 0.1
C359 0.1

R335 PT  R334 PT
R724 36K
R721 18K
R720 110K
R714 330
R713 3300
R715 3300
R712 3300
R748 3300
R747 3300
R749 3300
R746 3300

TP602  TP603  TP605

R726 5100
R723 36K
R722 110K
R719 18K
R718 5100

R736 36K
R735 36K
R737 110K
R740 18K
R739 110K
R738 18K
R732 5600
R730 5600

TO M I  182  F.ENC
R709 10K
TO M I  183  Z.ENC
R705 10K
R708 39K
R706 39K
TO M I  184  LED_CONT
R707 100  M

7 6 5 4 3 2 1
IN4 IN3 VC2 VC1 VLEF IN1 IN2
IC701
LB1837M
(ZOOM MOTOR DRIVE)
8 9 10 11 12 13 14
OUT4 GND OUT3 OUT1 GND OUT2 VCC

7 6 5 4 3 2 1
IN4 IN3 VC2 VC1 VLEF IN1 IN2
IC702
LB1837M
(FOCUS MOTOR DRIVE)
8 9 10 11 12 13 14
OUT4 GND OUT3 OUT1 GND OUT2 VCC

Q703
UN5211
(LED DRIVE)
C703 4R7  R701 10
C704 4R7  R702 10
C708 47/16V
UNREG GND

C706 4R7  R703 10
C707 4R7  R704 10
R745 3R9
R744 3R9

R348 33K
R347 2700
R345 100K
R346 5600
R349 300K
R356 330K

TO M I  189  ZOOM_MT1
TO M I  190  ZOOM_MT3
TO M I  191  ZOOM_MT4
TO M I  192  ZOOM_MT2
TO M I  185  FOCUS_MT3
TO M I  186  FOCUS_MT1
TO M I  187  FOCUS_MT4
TO M I  188  FOCUS_MT2

TO M IX  211  MOTOR_VM

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

**COMPARISON CHART OF MODELS & MARKS**

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |

C_MICOM_3.5V 140 TO M I,M IV
CAM-CS 17 TO M II
R653 1K DAC_CLK 177 TO M VI
R436 1K DAC_DATA 178 TO M VI
R651 1K 1K R381 DAC_LD 179 TO M VI
CAM-CLK 14 TO M II
1K R382 CAM-DATA 15 TO M II
C344 PT VCR-DATA 16 TO M II
R375 33K R374 8200
R379 8200 EVR_SCK 164 TO M X
R377 33K
C346 470P
R427 100 EVF&LCD_DATA 173 TO M I

IC306
BR9040FV-WE2
(EEPROM)
LINK TO I/O CHART

8 RES  7 GND  6 DO  5 DI
1 R/B  2 VCC  3 CS  4 SK

C360 0.1
C331 0.1

VCR->CAM (100)
EE/EVF SCK (99)
EE/EVF SO (98)
EE SI (97)
EVR CLK (96)
CAM->EVR (95)
EVR->CAM (94)
EVR MODE (93)
NC (92)
NC (91)
NC (90)
BEVD (89)
DIS IRQ (88)
VD (87)
NC (86)
(85) R414 10K
(84) R413 10K
(83) R412 10K
(82) R411 10K
AD7 (81) R410 10K
AD6 (80) R327 10K
AD5 (79) R326 10K
AD4 (78) R324 10K
LCD BRIGHT (77)
THERMO (76)

R336 47K
R432 100K
EVF_CLK 174 TO M I
R380 1K
C345 470P
R378 33K R376 8200
CAM_TO_EVR 166 TO M X
EVR_TO_CAM 165 TO M X
EVR_MODE 195 TO M X
BEND 114 TO M IV
DIS_IRQ 154 TO M IV
CAMERA_VD 126 TO M IV
R409 47K

R753 3300 R752 10K[F]
R340 3300 R751 1M
R750 1M
ZOOMCOM 171 TO M I
THERMO 175 TO M I

C710 0.01[KB]
C709 0.01
C359 0.1
MA11 D701

**Microcontroller section (left)**
ADR[3] ADR[2] ADR[1] ADR[0]
(13)(12)(11)(10)(9)(8)(7)(6)(5)(4)(3)(2)(1)
ADRS3 ADRS2 ADRS1 ADRS0 NC CAM CS VSS VDD DAC SCK DAC SO DAC LD VCR SCK CAM->VCR

08
DBJG000120
MICROCONTROLLER)
TO I/O CHART

TEST CLK TEST DATA TEST LED CNT ZENC FENC AVSS AVDD AVREF ZOOM AD FNO
(63)(64)(65)(66)(67)(68)(69)(70)(71)(72)(73)(74)(75)
TP602 TP603 TP605

C337 PT
R367 27K
AF_4.5V 200 TO M IX
CAMERA_15V 201 TO M IX

R352 27K
R366 1K
C340 0.01[KB]
R370 4700
Q310 2SD1819A (BUFFER)
C341 1000P[KB]
C338 0.1
R365 3R9M
R371 PT
R364 47K
R344 1500
HOLE_GAIN 203 TO M VI
HOLE_OFFSET 204 TO M VI
PWM_OFFSET 205 TO M VI
VREF_L 127 TO M VI

7 6 5 4 3 2 1
VOUT2 V2- V2+ VCC V1+ V1- VOUT1

IC309
BA10324AFV
(HALL AMP)

8 9 10 11 12 13 14
VOUT3 V3- V3+ GND V4+ V4- VOUT4

R353 5600
R351 47K
R348 33K
R350 8200
R347 2700
R355 300K
R345 100K
R357 470K
C342 0.1
R356 330K
R354 PT
C347 1000P[KB]
R373 30K
R372 39K
R368 27K
R369 39K
C339 1
IRIS_PWM 116 TO M IV
ALC_MAIN+ 202 TO M I

R730 5600
IN1 IN2
2 1

OUT2 VCC
13 14

R745 3R9
R346 5600
R349 300K
R744 3R9

Q311 2SD1819A (HALL AMP DRIVE)
C343 PT R361 10K
R360 330
R358 12K R359 12K
R363 3900
R362 100
HOLE_IN+ 206 TO M I
HOLE_IN- 207 TO M I
HOLE_OUT+ 208 TO M I
HOLE_OUT- 209 TO M I
ALC_CONT+ 210 TO M I

**LINK TO VOLTAGE CHART**

**LSJB8205**
**MAIN V (CAMERA II/LENS DRIVE) SCHEMATIC DIAGRAM**
**VM-L153/PV-L353/PV-L353-K**

# MAIN VI (CCD DRIVE) SCHEMATIC DIAGRAM (A,B,C)

TO M IV — 140 — DSP_3.5V

TO M IV — 117 — DCC

TO M X — 213 — IRIS_TEST

**WF2**

C663 10P[DC]

C634 1[KB]

**Q617** UN5215 (BUFFER)

R652 1K

C636 1

36 VCC3
35 GND3
34 GAMIN
33 AGCOUT
32 NC
31 AGCDC
30 NC
29 VCC2

**WF3**

0.1
C638 1
C647
C652 PT

37 GAMDC
38 GAMOUT
39 CBIN
40 VCC4
41 GND4
42 CBOUT
43 SUBIN
44 SUBOC
45 DCCP
46 90DET
47 VDD2
48 FCK IN

R659 5600

R658 PT

C639 1

C640 0.1
C641 0.1

**IC605** AN2109
(SAMPLING HOL
(AGC CONTROL

TO M IV — 107 — ADS_CLK

1 GND1
2 SUBOUT
3 NC
4 NC
5 DA1
6 VCC1
7 DA2
8 DA3

TO M IV — 129 — ADSIG

**WF4**

TO M V — 203 — HOLE_GAIN
TO M V — 204 — HOLE_OFFSET
TO M V — 205 — PWM_OFFSET
TO M V — 177 — DAC_CLK
TO M V — 178 — DAC_DATA
TO M V — 179 — DAC_LD

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

**COMPARISON CHART OF MODELS & MARKS**

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |

⬅ REC VIDEO SIGNAL

D601 MA111

| CCD_SUB | 214 | TO M I |
| V4_DRIVE_OUT | 218 | TO M I |
| V3_DRIVE_OUT | 219 | TO M I |
| CCD_15V | 220 | TO M I |
| CAMERA_15V | 201 | TO M IX |
| CCD_V3 | 121 | TO M IV |
| CCD_CH2 | 125 | TO M IV |
| CCD_V4 | 122 | TO M IV |

L602 15U[J] [2520]

R626 PT
C614 1[KB]

IC603 MN3112SA-E1 (CCD-V-DRIVE)

pins 20-11: VHH VM24 V4O V3O VH GND V3I CH2 V4I NC
pins 1-10: SUBO VL V2O VM13 V1O VDD V1I CH1 V2I SUBI

C616 0.1[KB]
C617 0.1
R639 1M

| SUB | 118 | TO M IV |
| CCD_V2 | 120 | TO M IV |
| CCD_CH1 | 123 | TO M IV |
| CCD_V1 | 119 | TO M IV |
| V1_DRIVE_OUT | 221 | TO M I |
| V2_DRIVE_OUT | 222 | TO M I |
| CCD_-8V | 223 | TO M I |

C623 10/16V
R634 PT
R683 100
R644 33

| CAMERA_-8V | 224 | TO M IX |
| CCDOUT | 225 | TO M I |
| CPOB | 130 | TO M IV |
| CAMERA_4.5V | 139 | TO M IX |
| PBLK | 131 | TO M IV |
| DS1 | 108 | TO M IV |
| DS2 | 113 | TO M IV |
| VREF_L | 127 | TO M I,M IV,M V |
| VREF_H | 128 | TO M IV |
| SPK_EVR | 226 | TO M VIII |

**WF2**
Q617 UN5215 (BUFFER)
R652 1K
C663 10P[DC]
C633 1[KB]
C634 1[KB]
C636 1
C646 10/6.3V
L605 15U[J] [2520]

IC605 AN2109 (SAMPLING HOLD& AGC CONTROL)
C644 0.1
C645 0.1
C642 1[KB]
C643 10/6.3V
R662 1K

pins 36-25: VCC3 GND3 GAMIN AGCOUT NC AGCDC NC VCC2 CDSIN2 CDSIN1 GND2 CPOB
pins: 37 GAMDC, 38 GAMOUT, 39 CBIN, 40 VCC4, 41 GND4, 42 CBOUT, 43 SUBIN, 44 SUBOC, 45 DCCP, 46 90DET, 47 VDD2, 48 FCK IN
PULSEI 24, NC 23, DS1 22, DS2 21, VREFL 20, VREFH 19, VREFM 18, VDD 17, NC 16, NC 15, NC 14, NC 13
pins 1-12: GND1 SUBOUT NC DA1 VCC1 DA2 DA3 DA4 SCK DATA LOAD

**WF4**

LINK TO VOLTAGE CHART
LINK TO SIGNAL WAVEFORM

**LSJB8205**
**MAIN VI (CCD DRIVE) SCHEMATIC DIAGRAM**
**VM-L153/PV-L353/PV-L353-K**

# MAIN VII (VIDEO) SCHEMATIC DIAGRAM (A,B,C)

REC VIDEO SIGNAL    PB VIDEO SIGNAL

TO M IV  111  CAMERA_Y
TO M IV  109  CAMERA_C
TO M II  5  ROTARY
TO M II  6  V-LOCK-P

TP3001 ROTARY

TP3003

R3151 18K

C3038 56P
R3018 470
C3040 0.01
X3001 LSSX0070
C3039 18P[JC]
C3035 PT
C3034 1
C3032 3300P[KB]
C3033 2R2[KB]
R3016 820
R3015 39K
R3017 100
C3036 4R7[KB]
C3031 0.22[KB]
(1608)
R3154 3300
C3068 0.01
R3140 1200
C3029
C3028 0.01[KB]
C3030 0.01

60 HSW IN
59 VCO GND
58 FSC OUT
57 VCO VCC
56 LOGIC VDO
55 4FSC IN
54 LOGC GND
53 4FSC OUT
52 LOG VCC
51 AFC DET
50 APC DET
49 SIDE/FH KOCK
48 CNR OUT
47 CNR MON
46 CNR CCD IN
45 ART V IN
44 C COMB IN
43 FILTER ADJ
42 MBPF OUT
41 ACK OUT

TO M II  9  D/A_LOAD       61 HSS OUT
TO M II  8  D/A_DATA       62 LOAD IN
TO M II  7  D/A_CLK        63 DATA IN
TO M II  10  N-R-DATA      64 CLK IN
TO M II  11  REC-DATA      65 D/A 1 OUT
                          66 D/A 2 OUT
C3041 0.1[KB]             67 DAC GND
C3042 22/6.3V            68 DAC VDD
C3132 1
TO M X  227  FH          69 REC C ACC DET
L3001 22U (TDK)  C3024 1  70 DAC VCC
L3002 22U               71 DRV VCC
C3043 22/6.3V  R3022 1K  R3023 1K  C3045 3R3/50V  72 VIDEO OUT
R3024 56                73 VIDEO OUT
C3046 220/4V            74 DRV GND
                        75 NRD IN
TO M I  228  EVF_Y_OUT   76 EVF Y OUT   WF12
                        77 VFD IN
                        78 RD IN
TO M II  12  CVIN2       79 MLPF/DRIVER IN
C3047 1[KB]             80 V GCA LPA OUT

IC3001
AN2401NFH
(LUMINANCE/CHROMINANCE
SIGNAL PROCESS)

WF7
WF13
WF14
WF6

WF8

1 RECY IN
2 TRICK L OUT
3 EE H OUT
4 EP H OUT
5 Y C-TRAP
6 Y VCC
7 HSS-DET
8 Y GND
9 NLE/DE OUT
10 Y MAIN CLAMP
11 NC T.C.
12 YD CLAMP IN
13 YD OUT
14 YDLPF IN
15 YNR DC
16 YD LPF OUT
17 FB AMP IN
18 ME OUT
19 MDE T.C
20 PB Y PEAKING

C3001 3R3[KB]  [2012]  WF5

TO M VIII  212  EE-H
TO M VIII  229  SLP-H
TO M VIII  230  AUTO_FADE_CONT

TO M IX  231  VIDEO_REG_4.5V
TO M IV  110  LPF4.5V
TO M I  232  VIDEO_OUT

TO M I  233  R-Y_C.EVF
TO M I,M X  234  B-Y_C.EVF

C3007 0.1
C3009
L3003 22U
C3004 PT
C3003 22/6.3V
L3009 82U[J]
C3006 3300P[KB]
C3008 0.01[KB]
R3004 27
C3010 560P[
L3026 PT  C3137 PT  C3151 PT(1000P)
(15UH)  (68P)
D3004  PT
C3005 22P
R3002 150K
R3003 1500
C3010 0.01
C3011 220P[JC]
R3005 220
C3012 820P
R3006 1K
R3010 1200
C3014 330P[JC]
R3011 270

R3026 100  R-Y
C3153 680P  R3025 100  B-Y
C3152 680P
EVF GND  (C.EVF or LCD MODEL)

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NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

**COMPARISON CHART OF MODELS & MARKS**

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |

TP3004 Fsc

C3081 0.01
R3130 4700
C3078 0.01
C3098 0.1
C3077 0.01
C3076 PT
C3075 0.01[KB]
C3085 0.1

R3050 820
C3079 1000P[KB]
C3080 0.01

IC3002
MN38663S-E1
( TWIN CCD
1H DELAY )

20 XIV
19 PCOUT&VCOIN
18 -VBB
17 VSS2
16 VDD2
15 VINVY
14 SW
13 VINC2
12 VGC2
11 VO2Y

1 XIC
2 VSS3
3 VDD3
4 VINC1
5 NC
6 VINVC
7 VGC1
8 VO1C
9 VDD1
10 VSS1

C3069 PT
C3070 0.1
C3071 PT
C3135 0.01
C3072 0.01[KB]
C3073 0.1[KB]
C3074 22/6.3V

L3025 PT (10U)
C3136 PT (22P)
L3006 22U

R3154 3300
R3153 2700
R3048 680

R3140 1200

C3031 0.22[KB]
(1608)

C3068 0.01

C3029
C3028 0.01[KB]
0.01[KB]
C3030 0.01

R3215 100K
D3006 MA2S357
4.84 MHz TRAP

R3045 1K
C3061 0.01
L3017 330U[J]
R3044 680

ENV-OUT 235 TO M I
CENV 236 TO M X
100 R3180

C3019 0.01
C3055 180P
R3150 1500
L3013 330U[J]

PBIN 237 TO M X

L3031
C3157 47U[J]
C3158 47P
8P
C3022 1[KB]

R3034 820
Q3004 2SC4215
CHROMA PHASE COMPENSATOR
L3014 18U[J]
R3037 3300

48 CNR OUT
47 CNR MON
46 CNR CCD IN
45 ART V IN
44 C COMB IN
43 FILTER ADJ
42 MBPF OUT
41 ACK DET
40 MBPF REAP
39 MBM DC
38 REC C OUT
37 B-Y OUT
36 R-Y OUT
35 C VCC
34 REC C IN
33 C GND
32 ACC DET
31 PB C IN
30 C COMB MON
29 DOCP OUT
28 FM VCC
27 REC Y OUT
26 FM GND
25 PB Y IN
24 RFAGC DET
23 RF AGC OUT
22 Y LIM IN
21 YNR MON

WF7
WF13
WF14
WF6
WF8

C3025 0.01[KB]
C3021 22/6.3V

TP3006 REC C

R3032 1K
R3033 1800
Q3003 2SB1218A (BUFFER)
L3011 47U[J]
C3053 39P
C3057 18P
Q3005 2SD1819A
CHROMA PHASE COMPENSATOR
R3039 100
WF11
R3058 12P
C3054 100P
L3012 12U[J]
R3035 1800
R3036 470
R3038 4700

TP3005
R3129 390
R3040 2200
L3016 47U[J]
R3042 PT
L3015 330U[J]
R3152 820
R3041 680
R3031 820
FM GND

C3023 0.047[KB]
TP3002 DOCP
C3017 0.01
C3059 10P[DC]
C3060 12P

Q3027 2SD1819A (BUFFER)
R3181 47K
R3184 820
C3150 0.01
C3139 0.01
R3185 1800

C3107 0.01
R3182 47K
R3183 1500
HA-GND

REC_C 238 TO M X
REC_Y 239 TO M X

C3018 0.1[KB]
L3004 22U
C3048 0.01

REC-IN 240 TO M I
HA-4.5V 241 TO M I

L3030 22U

R3006 1K
R3010 1200

13 YD LPF IN
14 YD LPF OUT
15 YNR DC
16 FB AMP IN
17 ME OUT
18 MDE T.C
19 PB Y PEAKING
20

C3008 0.01[KB]
R3004 27
R3005 220
C3015 560P[JC]
C3014 330P[JC]
R3008 1200
C3013 56P
R3009 3900

C3011 220P[JC]
C3012 820P
R3011 270

YNR 242 TO M X

R3026 100
R-Y
C3153 680P
R3025 100
B-Y

EVF GND
(C.EVF or LCD MODEL)
C3002 0.01

**LINK TO VOLTAGE CHART**

**LINK TO SIGNAL WAVEFORM**

**LSJB8205
MAIN VII (VIDEO) SCHEMATIC DIAGRAM
VM-L153/PV-L353/PV-L353-K**

# MAIN VIII (AUDIO) SCHEMATIC DIAGRAM (A,B,C)

◀ REC AUDIO SIGNAL    ◀ PB AUDIO SIGNAL

Q4007
2SB970
(SWITCHING
DELAY-REC ON)

R4030
68

T4001
G2A392C00002

R4031
22K

L4001
220U

R4032
2200

C4005
6800[KB]

R4029
4700

R4034
22K

C4007
1[KB]

R4033
2200

Q4008
2SD1819A
(SWITCHING
DELAY-REC ON)

C4006
0.022[KB]

Q4006
2SD602-R
(BIAS OSC)

C4008
22/6.3V

TO M IX    243    AUDIO_REG_4.5V
TO M I    244    MIC_OUT

C4024
PT

R4041
2200

C4023
4R7/6.3V

C4022 0.47[KB]

C4028
10/6.3V

C4027
0.015[KB]

R4045
330

R4042
100K

R4040
0

C4032
1[KB]

C4026
0.1[KB]

R4043
820Ω

R4044
5600

R4046
330K

C4029
PT

C4031
1200P[KB]

R4026

C4030
4R7/6.3V

| | | | | | | | | | | | | |
|36|35|34|33|32|31|30|29|28|27|26|25| |
|Bch+|Bch-|BchOUT|MIC_OUT|MIC_IN|ALC|FADE|PB_LIN_IN|PB_OUT|PBEQSW|PB NF|PB_IN| |

37 VREF_OUT
38 AchOUT
39 Ach-
40 Ach+
41 4VREG
42 VCC
43 REG_C
44 EVR_Ach
45 EVR_Bch
46 VREF IN
47 SP_EVR
48 VCC_SP

IC4001
AN12998A-V
(AUDIO SIGNAL PROCESS)

24 EE/PB
23 EP/SP
22 GND
21 HSW_DRIVE
20 REC/PB
19 DELAY
18 REC_OUT
17 REC NF
16 VCC_CTL
15 MON_OUT
14 PB_CTL
13 CTL+

C4019
1[KB]

TO M VI    226    SPK_EVR

L4002
100U

C4016
22/6.3V

C4017
0.1

C4018
PT

C4021
10/16V

| | | | | | | | | | | | |
|1|2|3|4|5|6|7|8|9|10|11|12|
|SP(-)|GND SP|SP(+)|MUTE|A OUT|SP IN|SP_ON/OFF|VREFCTL|CTL OUT|CTL IN|GND_CTL|CTL-|

TO M II    25    A/V-DREC_H
TO M II    27    AUDIO-MUTE-H
TO M II    26    AUDIO_REC_PB_CTL
TO M II    24    AUDIO_RESET
TO M II    33    SPK_ON_L

R4037
47K

R4053
82K

C4015
0.1

R4009
2R2

R4010
2R2

C4013
0.1

C4014
0.1

C4036
1

R4052
22K

C4039
0.47[KB]

R4011
10K

TO M IX    245    SPK_4.5V

TP4001

C4002
1[KB]

R4003
2200

R4006
18K

C4012
0.01[KB]

TO M I    246    AUDIO_OUT

R4002
10K

C4011
4700P[KB]

R4007
10K

R4055
0

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NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

**COMPARISON CHART OF MODELS & MARKS**

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |

T4001
G2A392C00002

R4028 PT

C4004
4700[JC]

C4003
1000P[KB]

R4027
18K

4029
00

4006
0602-R
S OSC)

C4008
22/6.3V

C4009
0.1

R4035
100

C4024
PT

C4022 0.47[KB]

C4028
10/6.3V

C4027
0.015[KB]

R4045
330

R4054
43K

2SD1819A
**Q4009**
( SWITCHING )
SLP-ON

TP4002  TP4003

R4057
10

AUD_P    247   TO M I
AUD_R2   248   TO M I
AUD_R1   249   TO M I
AE_H     250   TO M I

C4026
0.1[KB]

R4046
330K

C4031
1200P[KB]

R4026
33K

C4041
2200P[KB]

R4043
8200

R4044
5600

C4029
PT

C4030
4R7/6.3V

R4025
3300

**Q4002**
2SD1819A
( SWITCHING )
PB-ON

CTLE_+   251   TO M I

R4024
3300

**Q4003**
2SD1819A
( SWITCHING )
PB-ON

30 29 28 27 26 25
FADE  PB_LIN_IN  PB_OUT  PBEQSW  PB NF  PB_IN

R4058
22K

EE/PB  24
EP/SP  23
GND    22

R4047
68K

HSW_DRIVE  21

R4050
39K

R4019
22K

R4020
18K

R4021
2200

22K
R4022

AUTO_FADE_CONT  230  TO M VII

REC/PB  20

R4051
10K

EE-H   212  TO M VII

DELAY  19

R4056
10K

SLP-H  229  TO M VII

REC_OUT  18

R4017
12K

C4035
1

XP4601
**Q4001**
(SWITCHING)

REC NF  17

R4018
33K

4001
2998A-V
GNAL PROCESS)

VCC_CTL  16

MON_OUT  15

R4013
100K

C4033
2700P[KB]

C4034
0.01[KB]

PB_CTL  14

R4016
560

R4015
560

CTL+  13

R4012
100K

R4014
43K

SP_ON/OFF  VREFCTL  CTL OUT  CTL_IN  GND_CTL  CTL-
7  8  9  10  11  12

**Q4005**
2SD1819A
( SWITCHING )
SLP-ON

C4039
0.47[KB]

SP-   252   TO M I
SP+   253   TO M I

C4036

R4052
22K

R4011
10K

**LINK TO VOLTAGE CHART**

**LSJB8205**
**MAIN VIII (AUDIO) SCHEMATIC DIAGRAM**
**VM-L153/PV-L353/PV-L353-K**

# MAIN IX (POWER SUPPLY) SCHEMATIC DIAGRAM (A,B,C)

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE 1.5A 24/32V FUSE.
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES
D' INCENDIE N' UTILISERQUE DES FUSIBLE DE MÉME
TYPE 1.5A 24/32V

⚠ 1.5A 24/32V

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE 2A 24/32V FUSE.
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES
D' INCENDIE N' UTILISERQUE DES FUSIBLE DE MÉME
TYPE 2A 24/32V

⚠ 2A 24/32V

IMPORTANT SAFE
COMPONENTS IDE
SPECIAL CHARAC
WHEN REPLACING
USE ONLY THE SP

TO M I  254  BATT_V
TO M I  255  UNREG_POW

⚠ 2A 24/32V
F1001 K5H202Z00005
24/32V2A  [1608]

⚠ F1002 K5H152Z00006
24/32V1.5A  [1608]

⚠ 1.5A 24/32V

Q1002 UN5113
(SWITCHING POWER ON-ON)

Q1001 UN5111
(SWITCHING POWER ON-ON)

R1001 PT

(SWITCHING POWER ON-ON)

L1001 NP05DA100M
C1020 1[KB] [N]
C1021 47/16V [D]
C1022 4R7[KB] [3216]

Q1005 2SA2010 +4.5V CONTROL
L1002 ELL6SH100M
C1024 4R7/10V [Y]
C1025 470P
R10 20K

R1071 47K
C1023 3R3[KB] [N]
D1004 EP10QY03

R10 150
R1061 PT
C1050 PT
R10 10K

R1003 1K
C1002 0.1[KB]

R1011 4700

Q1003 UN5115 (BUFFER)

R1004 6800
R1006 220K
R1007 220K
C1011 4700P[KB]
C1012 2200P[KB]
R1020 470
R1021 470

C1015 100P
C1014 47P

Q1006 2SA2046 +3.5V CONTROL
L1004 ELL6SH330M
C1026 4R7[KB] [N]
C1027 PT [Y]
C1028 1000P[KB]
D1013 EP10QY03

IC1001 BA9737KV (PWM CONTROL)

13 STB-4
14 STB-3
15 RT  R1012 39K[D]
16 CT  C1008 100P
17 SCP  C1006 PT
18 GND
19 VREF  C1005 0.1
20 VCC  C1007 0.1
21 STB
22 STB-2
23 STB-1  R1009 22K
24 DTC-2

12 FB-3
11 INV-3
10 SCP-3
9 DTC3
8 FB-4
7 INV-4
6 NON-4
5 SCP-4
4 DTC-4
3 OUT-4
2 CAP-H4
1 CAP-L4

48 BIAS-4  R1022 5600
47 VCC34
46 OUT-3  C1013 100P
45 CAP-L3  C1061 47P
44 CAP-H3  R1026 6800
43 BIAS-3
42 P-GND
41 OUT-2
40 CAP-L2  C1016 100P
39 CAP-H2  R1027 6800
38 BIAS-2  C1062 47P
37 VCC12

R1072 47K

Q1007 2SA2046 (CAMERA POWER CONTROL)
C1056 1[KB] [N]
D1005 MA111
D1016 MA111
C1029 1[KB] [N]
C1031 10/16V [B]
R1073 47K
C1057 1[KB] [N]
D1017 MA111
D1007 MA111
C1034 1[KB] [N]
L1018 ELL6SH101M

25 FB-2
26 INV-2
27 SCP-2
28 FB-1
29 INV-1
30 NON-1
31 SCP-1
32 DTC-1
33 BIAS-1
34 CAP-H1
35 CAP-L1
36 OUT1

C1017 47P
C1063 100P
R1030 6800

R1028 470
R1029 1K
C1018 4700P[KB]

R1013 2200
R1019 220K  R1014 PT  C1019 4700P[KB]
R1016 20K[D]
C1009 1[KB]
R1017 47K[D]

C1010 0.1[KB]
R1010 PT

<LIGHT CIR>
R1101 0.56 [8G]
R1102 0.56 [8G]
R1103 22K
R1108 47K
R1111 22K
Q1105 2SB1218A (CURRENT DETECTOR)
Q1101 2SA2011 (SWITCHING LIGHT ON-ON)
R1104 56
R1105 2200
C1101 2R2[KB]
Q1103 2SB1218A (OVER VOLTAGE PROTECT)
D1102 MA111
R1109 47K

Q1102 2SD1819A (SWITCHING LIGHT ON-ON)
R1107 5600
R1110 22K
R1106 560
D1101 RD12S[B] (12V)
R1070 PT
NO LIGHT=0

Q1008 2SA2046 +4.5V CONTROL
L1003 ELL6SH330M
R1074 47K
D1014 EP10QY03
C1037 4R7[KB] [N]
C1038 PT [Y]

<LCD CIR>

Q1009 2SA2046 (CAP VM CONTROL)
R1044 4700
C1039 1000P[KB]
Q1024 2SD1819A
R1045 270
D1008 MA111
(CAP VM CONTROL)
[6G]
R1046 2200
Q1010 2SB1218A (SWITCHING)

TO M I  256  LIGHT_UNREG

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NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,
USE ONLY THE SPECIFIED PARTS.

**COMPARISON CHART OF MODELS & MARKS**

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |

| Signal | Pin | Destination |
|---|---|---|
| EXT-DC | 41 | TO M II |
| UNREG | 38 | TO M I,M II |
| LIGHT_SCP | 43 | TO M II |
| SW_UNREG | 42 | TO M II |
| VOLT-DOWN | 45 | TO M II |
| SYS_REG_4.5V | 37 | TO M I,M II |
| POWER_ON-L | 39 | TO M II |
| LIGHT_ON-H | 40 | TO M II |
| LCD_BL_CONT | 44 | TO M II |
| SERVO_REG_4.5V | 85 | TO M III |
| CAP_VM | 84 | TO M III |
| CYL_VM | 101 | TO M III |
| TRI.WAVE | 83 | TO M III |
| SW_CYL_UNREG | 102 | TO M III |
| VIDEO_REG_4.5V | 231 | TO M I,M VII |
| EVF_4.5V | 257 | TO M I |
| AUDIO_REG_4.5V | 243 | TO M I,M VIII |
| SPK_4.5V | 245 | TO M VIII |
| CAMERA_3.5V | 138 | TO M I,M IV,M V |
| CAMERA_15V | 201 | TO M V,M VI |
| CAMERA_4.5V | 139 | TO M VI,M X |
| CAMERA_-8V | 224 | TO M VI |
| MOTOR_VM | 211 | TO M V |
| AF_4.5V | 200 | TO M I,M V |
| LCD_-15V | 259 | TO M I |
| EVF/LCD_15V | 260 | TO M I |
| BL_4.5V | 261 | TO M I |
| CAP_SW | 82 | TO M III |

**LINK TO VOLTAGE CHART**

**LSJB8205**
**MAIN IX (POWER SUPPLY) SCHEMATIC DIAGRAM**
**VM-L153/PV-L353/PV-L353-K**

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# MAIN X (EVR CONNECTOR) SCHEMATIC DIAGRAM (A,B,C)

| TO M VI | 213 | IRIS_TEST |
| TO M IX | 139 | CAMERA_4.5V |

| TO M V | 195 | EVR_MODE |
| TO M V | 165 | EVR_TO_CAM |
| TO M V | 166 | CAM_TO_EVR |
| TO M V | 164 | EVR_SCK |

| TO M IV | 124 | EVR_VD |
| TO M IV | 167 | JIG_RESET |
| TO M IV | 111 | CAMERA_Y |

| TO M II | 3 | H-SW |
| TO M II | 57 | LOAD0 |
| TO M II | 56 | LOAD1 |
| TO M I | 60 | S-REEL |

| TO M II | 69 | PB_CTL |
| TO M I | 59 | S-PHOTO+ |
| TO M II | 31 | CAP_FG_CLK |

| TO M VII | 227 | FH |
| TO M VII | 237 | PBIN |
| TO M VII | 242 | YNR |
| TO M VII | 236 | CENV |
| TO M VII | 234 | B-Y_C.EVF |

(TRAP MONITOR)

| TO M VII | 238 | REC_C |
| TO M VII | 239 | REC_Y |

| TO M I | 262 | M_VCOM |
| TO M I | 263 | M_B |
| TO M I | 264 | M_G |
| TO M I | 265 | M_R |

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

**COMPARISON CHART OF MODELS & MARKS**

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |

SIS GND

**S301**

| Pin | Signal |
|---|---|
| 1 | GND |
| 2 | IRIS_TEST |
| 3 | GND |
| 4 | |
| 5 | IRIS_O/C |
| 6 | EVR_MODE |
| 7 | JIG_5V |
| 8 | EVR_TO_CAM |
| 9 | EVR_VD |
| 10 | CAM_TO_EVR |
| 11 | JIG_RESET |
| 12 | EVR_SCK |
| 13 | NC |
| 14 | Y_OUT |
| 15 | M_VCOM |
| 16 | M_B |
| 17 | M_G |
| 18 | M_R |
| 19 | SREEL |
| 20 | SYS_RESET |
| 21 | |
| 22 | PB_CTL |
| 23 | S-PHOTO |
| 24 | CAP_FG_CLK |
| 25 | TRAP_MONITOR |
| 26 | FH |
| 27 | PBIN |
| 28 | YNR |
| 29 | CENV |
| 30 | H-SW |
| 31 | GND |
| 32 | REC_C |
| 33 | REC_Y |
| 34 | GND |
| 35 | LOAD0 |
| 36 | LOAD1 |

TO TP BOARD(FOR EVR ADJUSTMENT)

WF17

WF15

VIDEO GND

**LINK TO SIGNAL WAVEFORM**
**LSJB8205**
**MAIN X (EVR CONNECTOR) SCHEMATIC DIAGRAM**
**VM-L153/PV-L353/PV-L353-K**

# 8.3. MAIN SCHEMATIC DIAGRAMS (Model: PV-L453)

## MAIN I (CONNECTOR) SCHEMATIC DIAGRAM (D)

### TO TOP OPERATION UNIT — FP12

| | | | |
|---|---|---|---|
| GND | 6 | | |
| IRQ0 | 5 | R394 0 / R388 100 | IRQ0 47 TO M II |
| SCAN4 | 4 | R387 100 | SCAN4 52 TO M II |
| VCC | 3 | R385 100 | SYS_REG_4.5V 37 TO M IX |
| NC | 2 | | |
| AD2 | 1 | R393 100 | AD2 53 TO M II |

### TO SIDE L OPERATION UNIT — FP13

| | | | |
|---|---|---|---|
| GND | 16 | R383 0 | |
| DEW | 15 | | DEW 54 TO M II |
| SCAN3 | 14 | | SCAN3 51 TO M II |
| SCAN1 | 13 | | SCAN1 49 TO M II |
| PHOTO MODE | 12 | | PHOTO_MODE 68 TO M II |
| GND | 11 | | |
| SCNA2 | 10 | | SCAN2 50 TO M II |
| GND | 9 | | |
| POWER SW | 8 | | POWER_SW 48 TO M II |
| REC SW | 7 | | REC_SW 46 TO M II |
| GND | 6 | | |
| AD4 | 5 | R384 100 | AD4 55 TO M II |
| VCC | 4 | | |
| GND | 3 | | |
| V REF H | 2 | R391 0 | C_MICOM_3.5V 140 TO M IV |
| ZOOM COM | 1 | | ZOOMCOM 171 TO M V |

### TO LCD SHAFT UNIT FP9101 — FP10

| | | | |
|---|---|---|---|
| SP- | 26 | | SP- 252 TO M VIII |
| SP+ | 25 | | SP+ 253 TO M VIII |
| RVS_SW | 24 | R1611 68K | LCD_MODE 34 TO M II |
| REG_3.5V | 23 | R1610 27K | CAMERA_3.5V 138 TO M IX |
| OPEN_SW | 22 | | |
| LCD_R-Y | 21 | | R-Y_C.EVF 233 TO M VII |
| LCD_B-Y | 20 | | B-Y_C.EVF 234 TO M VII |
| LCD_Y | 19 | R1612 4700 R1613 4700 | EVF_Y_OUT 228 TO M VII |
| GND | 18 | | |
| GND | 17 | | |
| GND | 16 | | |
| BL_GND | 15 | | |
| BL_GND | 14 | | |
| BL_GND | 13 | | |
| BL_GND | 12 | | |
| LCD_DATA | 11 | R1602 100 | |
| LCD_CLK | 10 | R1601 100 | |
| LCD_IC_STB | 9 | R1603 100 | LCD_IC_STB 176 TO M V |
| LCD_ON-H | 8 | | LCD_ON-H 35 TO M II |
| UNREG | 7 | | UNREG 38 TO M IX |
| BL_4.5V | 6 | | BL_4.5V 261 TO M IX |
| BL_4.5V | 5 | | |
| BL_4.5V | 4 | | |
| BL_4.5V | 3 | | |
| LCD_-15V | 2 | | LCD_-15V 259 TO M IX |
| EVF/LCD_15V | 1 | | EVF/LCD_15V 260 TO M IX |

PT — P1

| | |
|---|---|
| EVF_R-Y | 2 |
| EVF_B-Y | 1 |

### TO MECHANISM FPC UNIT — FP7

| | | | |
|---|---|---|---|
| S-PHOTO+ | 14 | | S-PHOTO+ 59 TO M II,M X |
| S-PHOTO | 13 | | |
| S.LED-A | 12 | | S.LED-A 58 TO M II |
| S.LED-C | 11 | | |
| GND | 10 | | |
| C.DOWN | 9 | | C.DOWN 61 TO M II |
| S-REEL | 8 | | S-REEL 60 TO M II,M X |
| GND | 7 | | |
| REG4.5V | 6 | | REG4.5V 62 TO M II |
| POS.COM | 5 | | |
| POS1 | 4 | | POS1 63 TO M II |
| POS2 | 3 | | POS2 64 TO M II |
| S-TAB | 2 | | S-TAB 65 TO M II |
| GND | 1 | | |

### TO MICROPHONE UNIT FJ4302 — FP11

| | | | |
|---|---|---|---|
| FLAME_GND | 6 | | |
| FLAME_GND | 5 | | |
| AUDIO_GND | 4 | | |
| AUDIO_GND | 3 | | |
| MIC_OUT | 2 | | MIC_OUT 244 TO M VIII |
| AUDIO_REG_4.5V | 1 | | AUDIO_REG_4.5V 243 TO M IX |

TP5002 LIGHT_UNREG   TP5001 LIGHT_GND
D1103 MA3120WA (12V)

| | | |
|---|---|---|
| TO M IX | 256 | LIGHT_UNREG |
| TO M II | 36 | BACK_UP |
| TO M VIII | 246 | AUDIO_OUT |
| TO M IX | 255 | UNREG_POW |
| TO M IX | 254 | BATT_V |
| TO M VII | 232 | VIDEO_OUT |
| TO M V | 193 | MICOM_UART_OUT |
| TO M V | 194 | MICOM_UART_IN |
| TO M IX | 258 | PC_5V |
| TO M V | 197 | SD_CD/DATA3 |
| TO M V | 170 | CMD |
| TO M V | 198 | SD_IN_L |
| TO M V | 168 | SD_CLK |
| TO M V | 169 | SD_DATA |
| TO M V | 196 | SD_WP |
| TO M IX | 257 | EVF_4.5V |
| TO M V | 174 | EVF_CLK |
| TO M V | 173 | EVF&LCD_DATA |
| TO M V | 180 | EVF_IC_STB |
| TO M X | 265 | M_R |
| TO M X | 264 | M_G |
| TO M X | 263 | M_B |
| TO M X | 262 | M_VCOM |

R1605 100
R1604 100
R1606 100

### FP2 (TO ... CAT...)

| 37 | UNREG_ |
|---|---|
| 36 | UNREG_ |
| 35 | UNREG_ |
| 34 | UNREG_ |
| 33 | BACK_UP |
| 32 | AUDIO_L |
| 31 | UNREG |
| 30 | UNREG |
| 29 | UNREG |
| 28 | UNREG |
| 27 | BATT_V |
| 26 | VIDEO_O |
| 25 | GND |
| 24 | Y_IN |
| 23 | 232C_GN |
| 22 | MICOM_U |
| 21 | MICOM_U |
| 20 | PC_5V |
| 19 | SD_CD/D |
| 18 | CMD |
| 17 | SD_IN_L |
| 16 | SD_CLK |
| 15 | SD_DATA |
| 14 | SD_WP |
| 13 | CAMERA |
| 12 | BL_4.5V |
| 11 | EVF_SCL |
| 10 | EVF_DAT |
| 9 | EVF_LOA |
| 8 | EVF_GND |
| 7 | EVF/LCD |
| 6 | M_R_OUT |
| 5 | M_G_OUT |
| 4 | M_B_OUT |
| 3 | M_VCOM |
| 2 | |
| 1 | |

WF9   WF10

### FP6 (TO CYLI...)

| | | |
|---|---|---|
| TO M VII | 235 | ENV-OUT | 1 ENV-OUT |
| TO M VII | 240 | REC-IN | 2 REC-IN |
| TO M II | 1 | AT-OUT | 3 AT-OUT |
| TO M II | 4 | A/V-DREC_H | 4 V-DREC_ |
| TO M VII | 241 | HA-4.5V | 5 HA-4.5V |
| TO M II | 3 | H-SW | 6 H-SW |
| TO M II | 2 | FLY-E_L | 7 FLY-E_L |
| TO M IX | 231 | VIDEO_REG_4.5V | 8 FLY-E-4.5 |
| | | | 9 HA-GND |
| | | | 10 HA-GND |
| TO M II | 30 | SYS_VREF | 11 FG- |
| TO M III | 86 | FG+_CYL | 12 FG+ |
| TO M III | 89 | VH-_PG | 13 VH-(PG) |
| TO M III | 90 | VH+_PG | 14 VH+(PG) |
| TO M III | 87 | PG_CYL | 15 PG |
| TO M III | 92 | VH-_H3 | 16 VH-(H3) |
| TO M III | 96 | H2+_CYL | 17 H2+ |
| | | | 18 VH+(H2) |
| TO M III | 95 | H2-_CYL | 19 H2- |
| TO M III | 94 | H3+_CYL | 20 H3+ |
| TO M III | 91 | VH+_H1_H2_H3 | 21 VH(H3) |
| TO M III | 93 | H3-_CYL | 22 H3- |
| TO M III | 98 | H1+_CYL | 23 H1+ |
| | | | 24 VH+(H1) |
| TO M III | 97 | H1-_CYL | 25 H1- |
| TO M III | 100 | M1_CYL | 26 M1 |
| TO M III | 88 | M2_CYL | 27 M2 |
| TO M III | 99 | M3_CYL | 28 M3 |

R3186 2200

C3156 PT   C3155 PT   C3154 PT

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

REC VIDEO SIGNAL    PB VIDEO SIGNAL    REC AUDIO SIGNAL    PB AUDIO SIGNAL
REC VIDEO SIGNAL(PHOTO MODE)    LINE IMAGE DATA SIGNAL(CAMCORDER ↔ PC)
PB VIDEO SIGNAL(PHOTO MODE)    IMAGE DATA SIGNAL(SD/MMC ↔ PC)

TP5001
LIGHT_GND

D1103
MA3120WA
(12V)

FP2    ( TO BATTERY CATCHER C.B.A. )

| 37 | UNREG_GND |
| 36 | UNREG_GND |
| 35 | UNREG_GND |
| 34 | UNREG_GND |
| 33 | BACK_UP |
| 32 | AUDIO_L |
| 31 | UNREG |
| 30 | UNREG |
| 29 | UNREG |
| 28 | UNREG |
| 27 | BATT_V |
| 26 | VIDEO_OUT |
| 25 | GND |
| 24 | Y_IN |
| 23 | 232C_GND |
| 22 | MICOM_UART_OUT |
| 21 | MICOM_UART_IN |
| 20 | PC_5V |
| 19 | SD_CD/DATA3 |
| 18 | CMD |
| 17 | SD_IN_L |
| 16 | SD_CLK |
| 15 | SD_DATA |
| 14 | SD_WP |
| 13 | CAMERA_3.5V |
| 12 | BL_4.5V |
| 11 | EVF_SCLK |
| 10 | EVF_DATA |
| 9 | EVF_LOAD |
| 8 | EVF_GND |
| 7 | EVF/LCD_15V |
| 6 | M_R_OUT |
| 5 | M_G_OUT |
| 4 | M_B_OUT |
| 3 | M_VCOM |
| 2 | |
| 1 | |

R1605 100
R1604 100
R1606 100

FP9 (TO LENS UNIT)

| TO M V | 182 | F.ENC | 22 | F.ENC |
| TO M IX | 200 | AF_4.5V | 21 | AF_4.5V |
| TO M V | 183 | Z.ENC | 20 | Z.ENC |
| TO M V | 184 | LED_CONT | 19 | LED_CONT |
| TO M V | 175 | THERMO | 18 | THERMO |
| | | | 17 | THERMO_GND |
| TO M V | 192 | ZOOM_MT2 | 16 | ZOOM_MT2 |
| TO M V | 189 | ZOOM_MT1 | 15 | ZOMM_MT1 |
| TO M V | 191 | ZOOM_MT4 | 14 | ZOOM_MT4 |
| TO M V | 190 | ZOOM_MT3 | 13 | ZOOM_MT3 |
| TO M V | 210 | ALC_CONT+ | 12 | ALC_CONT+ |
| TO M VI | 127 | VREF_L | 11 | ALC_CONT- |
| | | | 10 | ALC_MAIN- |
| TO M V | 209 | HOLE_OUT- | 9 | HOLE_OUT- |
| TO M V | 207 | HOLE_IN- | 8 | HOLE_IN- |
| TO M V | 208 | HOLE_OUT+ | 7 | HOLE_OUT+ |
| TO M V | 206 | HOLE_IN+ | 6 | HOLE_IN+ |
| TO M V | 202 | ALC_MAIN+ | 5 | ALC_MAIN+ |
| TO M V | 188 | FOCUS_MT2 | 4 | FOCUS_MT2 |
| TO M V | 185 | FOCUS_MT3 | 3 | FOCUS_MT3 |
| TO M V | 187 | FOCUS_MT4 | 2 | FOCUS_MT4 |
| TO M V | 186 | FOCUS_MT1 | 1 | FOCUS_MT1 |

FP8    ( TO CCD C.B.A. FP601 )

| TO M VI | 220 | CCD_15V | 1 | 15V |
| TO M VI | 214 | CCD_SUB | 2 | SUB |
| TO M VI | 223 | CCD_-8V | 3 | -8V |
| TO M VI | 221 | V1_DRIVE_OUT | 4 | V1 |
| TO M VI | 222 | V2_DRIVE_OUT | 5 | V2 |
| TO M VI | 219 | V3_DRIVE_OUT | 6 | V3 |
| TO M VI | 218 | V4_DRIVE_OUT | 7 | V4 |
| TO M VI | 215 | CCD_RESET | 8 | RESET |
| TO M VI | 216 | CCD_H1 | 9 | H1 |
| TO M VI | 217 | CCD_H2 | 10 | H2 |
| | | | 11 | GND |
| TO M VI | 225 | CCDOUT | 12 | CCDOUT |

WF9    WF10

WF16    WF1

TP6205    TP6206

FP6 (TO CYLINDER UNIT)

| 1 | ENV-OUT |
| 2 | REC-IN |
| 3 | AT-OUT |
| 4 | V-DREC_H |
| 5 | HA-4.5V |
| 6 | H-SW |
| 7 | FLY-E_L |
| 8 | FLY-E-4.5V |
| 9 | HA-GND |
| 10 | HA-GND |
| 11 | FG- |
| 12 | FG+ |
| 13 | VH-(PG) |
| 14 | VH+(PG) |
| 15 | PG |
| 16 | VH-(H3) |
| 17 | H2+ |
| 18 | VH+(H2) |
| 19 | H2- |
| 20 | H3+ |
| 21 | VH(H3) |
| 22 | H3- |
| 23 | H1+ |
| 24 | VH+(H1) |
| 25 | H1- |
| 26 | M1 |
| 27 | M2 |
| 28 | M3 |

C3155 PT    C3154 PT

FP1    ( TO AC HEAD /CAPSTAN UNIT )

| TO M II | 66 | CTL_- | 1 | CTL(GND) |
| TO M II | 67 | CTL_+ | 2 | CTL(-) |
| TO M VIII | 251 | CTLE_+ | 3 | CTL(+) |
| | | | 4 | CTLE(+) |
| | | | 5 | CTLE(G) |
| | | | 6 | AE(GND) |
| TO M VIII | 250 | AE_H | 7 | AE(H) |
| TO M VIII | 249 | AUD_R1 | 8 | AUD(R1) |
| TO M VIII | 248 | AUD_R2 | 9 | AUD(R2) |
| TO M VIII | 247 | AUD_P | 10 | AUD(P) |
| | | | 11 | AUD_GND |
| | | | 12 | MRGND |
| TO M III | 70 | VMR_CAP | 13 | VMR |
| TO M II | 32 | FG+_CAP | 14 | FG+ |
| TP6217 | | | 15 | FG2+ |
| TO M III | 71 | VH-_CAP | 16 | VH- |
| TO M III | 72 | H1+_CAP | 17 | H1+ |
| TO M III | 73 | H1-_CAP | 18 | H1- |
| TO M III | 74 | H2+_CAP | 19 | H2+ |
| TO M III | 75 | H2-_CAP | 20 | H2- |
| TO M III | 76 | H3+_CAP | 21 | H3+ |
| TO M III | 77 | H3-_CAP | 22 | H3- |
| TO M III | 78 | VH+_CAP | 23 | VH+ |
| TO M III | 79 | M2_CAP | 24 | M2 |
| TO M III | 80 | M3_CAP | 25 | M3 |
| TO M III | 81 | M1_CAP | 26 | M1 |
| TO M II | 57 | LOAD0 | 27 | LOAD0 |
| TO M II | 56 | LOAD1 | 28 | LOAD1 |

TP5003    TP5004

**LINK TO VOLTAGE CHART**

**LINK TO SIGNAL WAVEFORM**

**LSJB8204**
**MAIN I (CONNECTOR) SCHEMATIC DIAGRAM**
**PV-L453**

# MAIN II (SYSTEM CONTROL/SERVO) SCHEMATIC DIAGRAM (D)

*1 NOTE
TO DEFEAT THE SAFETY FUNCTION, CONNECT A DIODE BETWEEN TP6011 AND TP6012, OR SELECT THE H. SAFETY DEFEAT IN SERVICE MODE. REFER TO NOTE1 OF "EXTENSION CABLES FOR SERVICE" IN SERVICE NOTES SECTION FOR MORE INFORMATION.

| TO M I | 1 | AT-OUT |
| TO M I | 2 | FLY-E_L |
| TO M I,M X | 3 | H-SW |
| TO M I | 4 | A/V-DREC_H |
| TO M VII | 5 | ROTARY |
| TO M VII | 6 | V-LOCK-P |
| TO M VII | 7 | D/A_CLK |
| TO M VII | 8 | D/A_DATA |
| TO M VII | 9 | D/A_LOAD |
| TO M VII | 10 | N-R-DATA |
| TO M VII | 11 | REC-DATA |
| TO M VII | 12 | CVIN2 |
| TO M V | 13 | CAM_RESET |
| TO M V | 14 | CAM-CLK |
| TO M V | 15 | CAM-DATA |
| TO M V | 16 | VCR-DATA |
| TO M V | 17 | CAM-CS |
| TO M III | 18 | RSF |
| TO M III | 19 | TLIM |
| TO M III | 20 | ACC |
| TO M III | 21 | CAP_ERR_PWM1 |
| TO M III | 22 | CYL_ERR_PWM0 |
| TO M III | 23 | CYLON |
| TO M VIII | 24 | AUDIO_RESET |
| TO M VIII | 25 | A/V-DREC_H |
| TO M VIII | 26 | AUDIO_REC_PB_CTL |
| TO M VIII | 27 | AUDIO-MUTE-H |

+4.5V REG.
GND   OUT

OUT   GND
IC6002
PST3439UR
(RESET)
VDD   NC

C6025 47/6.3V
R6031 PT

IC6006
XC62FP4502PR
(+4.5V REGULATOR)

C6029

R6021 1K
R6025 1K
R6026 1K

R6095 56K
R6096 100K
R6036 56K

R6138 PT

(FLYING ERASE ON-ON)
Q6008
UN5217

C6009 0.1
R6058 1K
C6032 PT
R6020 10K

R6024 100K

R6009 4700
Q6004
2SB1218A (SWITCHING)
R6010 4700
TP6216

R6066 6800
R6191 2200

W LCD  R6018 1K

R6068 1K
R6201 10K
R6202 22K
WF18

R6038 1K
R6037 1K
R6051 1K
D6001 MA142WK
TP6021
R6042 120K
R6046 3
TP6022
R6045 PT

C6008 10P[DC]  X6001 H0A143500002
C6007 12P
C6201 0.1[KB]
C6202 0.1[KB]

R6041 1K
R6032 10K

8 7 6 5
VDD SIO SCK CS
IC6005
S-3511AEFJ
(CLOCK IN)
TPO XIN XOUT GND
1 2 3 4
X6002
LSSX0072
TP6001
C6028 6P[DC]

LINK TO I/O CHART

C6006 0.01
Q6009 PT
(BATTERY CHARGE CONTROL)
R6044 PT
R6043 PT

R6004 3300
C6002 0.22[KB]
C6001 33P
C6033 PT

IC6001
MN101D06FWE
(SYSTEM CONTROL/SERVO MICROCONTROLLER)

LINK TO I/O CHART

26 P17 FLYE
27 P16 VDREC
28 P15 LCD_ON-H
29 P14 ARECCT
30 P13 DTCS
31 P12
32 P11 CAM-CS
33 PWM1
34 PWM0
35 P25 PWM4
36 VDD
37 OSCO
38 OSCI
39 VSS
40 XI
41 XO
42 SXI
43 P22 PHOTO
44 P21 RSTOUT
45 P20 EEPROM_CS
46 P87 RSTMN67324
47 PB6 CLOCK+B
48 VSS2
49 PB5
50 PB4 CVIN

25 NRST
24 VLP
23 HSW
22 ACC P40
21 RSF P42
20 TLIM P44
19 CYLON P46
18 EVF_CNT P26
17 SPK_ON_H P27
16 NSBO/PO0
15 NSBTO/PO2
14 NSBI/PO1
13 NSBTI/PO5
12 NSBOI/PO6
11 NSBTI/PO7
10 KEY_IN1 P50
9 POS2 P51
8 LOAD1 P52
7 LOAD2 P53
6 POWER P54
5 P60
4 POS1 P61
3 EJECT P62
2 TALLY P63
1 POWER P64

HAMP P66
DENV P65

ROTA P67
KEYSCAN1 P70
KEYSCAN2 P71
KEYSCAN3 P72
KEYSCAN4 P73
P74
DEW+B P75
SLED P76
TREEL P77
ENV P80
DEW P81
P82
SPHOTO P83
BATT P84
KEYAD2 P85
BATT/EXT P86
KEYAD3 P87
KEYAD4 PC0
SREEL PC1
LCDMOD PC2
LIGHT_SCP PC3
STAB P90
CO

R6062 1K
R6047 4700
R6074 22K
R6073 22K
R6048 4700
R6035 4700
R6145 4700
R6094 4700

Q6010
UN5212

51 VDD2
52 PB3 AFCC
53 PB2 AFCLPF
54 PB1 LCD_BL_CONT
55 PB0 LIGHT
56 PA7 AMUTE
57 PA6 VCS
58 PA5 VOB2
59 PA4 VOB1
60 PA3 VOW4
61 PA2 VOW3
62 PA1
63 PA0
64 PB2 CDDOWN
65 YFG
66 YPG
67 FGF
68 AFG
69 VRO
70 VRI
71 AVSS
72 CTLA
73 AVDD
74 RCTLP
75 RCTLN

C6004 1
R6034 1500
R6059 1K
R6006 1K
R6056 1K
R6052 1K
TP6215
R6028 3300
R6029 2700
R6030 2700
R6049 4700
TP6210
TP6208
R6211 PT
C6209 PT
R6222 PT
C6222 1[KB]
C6223 22/6.3V
C6034 PT
C6225 0.01[KB]

W LIGHT
W LCD

R6011 5600
R6039 22K
R6006 22K

W ROM_COLLECTION
R6001 1K
R6002 1K
R6003 1K

8 7 6 5
RST GND DO DI
IC6008
BR9040FV
(MEMORY)
RDY VCC CS SK
1 2 3 4
C6003 0.1

Q6002 UN5213
(INVERTER)

R6005 1K

| TO M III | 28 | YFG |
| TO M III | 29 | YPG |
| TO M I,M III | 30 | SYS_VREF |
| TO M X | 31 | CAP_FG_CLK |
| TO M I | 32 | FG+_CAP |

C6224 PT
R6215 1300
C6214 1000P[KB]
R6217 3900
R6209 2R2M
C6221 100P[KB]
C6207 100P
R6210 560
C6208 0.22
SYS AVSS GND

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

**COMPARISON CHART OF MODELS & MARKS**

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |

**IC6001 KEY VOLTAGE CHART**
(VCR MODE)

| TERMINAL VOLTAGE | OPERATION BUTTON | |
|---|---|---|
| | KEY DATA 2 (PIN 84) | KEY DATA 4 (PIN 81) |
| 3.42–3.78V | --- | --- |
| 2.52–2.88V | FF/ SEARCH | AUTO TRACKING |
| 1.62–1.98V | REW/ SEARCH | MENU |
| 0.72–1.08V | PLAY/STILL | DOWN |
| 0–0.18V | STOP | UP |

(CAMERA EIS MODE)

| TERMINAL VOLTAGE | OPERATION BUTTON | |
|---|---|---|
| | KEY DATA 2 (PIN 84) | KEY DATA 4 (PIN 81) |
| 3.42–3.78V | LIGHT | --- |
| 2.52–2.88V | EIS | MANUAL FOCUS/ SET |
| 1.62–1.98V | FADE | MENU |
| 0.72–1.08V | STILL/STROBE | DOWN/NEAR |
| 0–0.18V | BACK LIGHT | UP/FAR |

(CAMERA WIPE MODE)

| TERMINAL VOLTAGE | OPERATION BUTTON | |
|---|---|---|
| | KEY DATA 2 (PIN 84) | KEY DATA 4 (PIN 81) |
| 3.42–3.78V | LIGHT | --- |
| 2.52–2.88V | --- | MANUAL FOCUS/ SET |
| 1.62–1.98V | MODE | MENU |
| 0.72–1.08V | START | SELECT+ DOWN/NEAR |
| 0–0.18V | BACK LIGHT | SELECT- UP/FAR |

(PHOTO REC MODE)

| TERMINAL VOLTAGE | OPERATION BUTTON | |
|---|---|---|
| | KEY DATA 2 (PIN 84) | KEY DATA 4 (PIN 81) |
| 3.42–3.78V | LIGHT | --- |
| 2.52–2.88V | --- | MANUAL FOCUS/ SET |
| 1.62–1.98V | --- | MENU |
| 0.72–1.08V | TO PHOTO THUMBNAIL MODE | DOWN/NEAR |
| 0–0.18V | BACK LIGHT | UP/FAR |

(PHOTO THUMBNAIL MODE)

| TERMINAL VOLTAGE | OPERATION BUTTON | |
|---|---|---|
| | KEY DATA 2 (PIN 84) | KEY DATA 4 (PIN 81) |
| 3.42–3.78V | M. DEL | --- |
| 2.52–2.88V | --- | --- |
| 1.62–1.98V | --- | MENU |
| 0.72–1.08V | M. PLAY | SELECT+ |
| 0–0.18V | TO PHOTO REC MODE | SELECT- |

(PHOTO PLAY MODE)

| TERMINAL VOLTAGE | OPERATION BUTTON | |
|---|---|---|
| | KEY DATA 2 (PIN 84) | KEY DATA 4 (PIN 81) |
| 3.42–3.78V | --- | --- |
| 2.52–2.88V | --- | SET |
| 1.62–1.98V | --- | MENU |
| 0.72–1.08V | --- | SELECT+ DOWN |
| 0–0.18V | TO PHOTO THUMBNAIL MODE | SELECT- UP |

**IC6001 KEY VOLTAGE CHART**
(LCD PANEL MODE) (SW9101,9102)

| TERMINAL VOLTAGE (Pin 79 of IC6001) | LCD PANEL MODE | |
|---|---|---|
| | NORMAL/ REVERSE | OPEN/CLOSE |
| 0V | NORMAL | CLOSE |
| 2.6V | NORMAL | OPEN |
| 1.1V | REVERSE | CLOSE |
| 3.5V | REVERSE | OPEN |

Signal labels (right side):

| Label | Pin | |
|---|---|---|
| SPK_ON_L | 33 | TO M VIII |
| LCD_MODE | 34 | TO M I |
| LCD_ON-H | 35 | TO M I |
| BACK_UP | 36 | TO M I |
| SYS_REG_4.5V | 37 | TO M IX |
| UNREG | 38 | TO M IX |
| POWER_ON-L | 39 | TO M IX |
| LIGHT_ON-H | 40 | TO M IX |
| EXT-DC | 41 | TO M IX |
| SW_UNREG | 42 | TO M IX |
| LIGHT_SCP | 43 | TO M IX |
| LCD_BL_CONT | 44 | TO M IX |
| VOLT-DOWN | 45 | TO M IX |
| REC_SW | 46 | TO M I |
| IRQ0 | 47 | TO M I |
| POWER_SW | 48 | TO M I |
| SCAN1 | 49 | TO M I |
| SCAN2 | 50 | TO M I |
| SCAN3 | 51 | TO M I |
| SCAN4 | 52 | TO M I |
| AD2 | 53 | TO M I |
| DEW | 54 | TO M I |
| AD4 | 55 | TO M I |
| LOAD1 | 56 | TO M I,M X |
| LOAD0 | 57 | TO M I,M X |
| S.LED-A | 58 | TO M I |
| S-PHOTO+ | 59 | TO M I |
| S-REEL | 60 | TO M I |
| C.DOWN | 61 | TO M I |
| REG4.5V | 62 | TO M I |
| POS1 | 63 | TO M I |
| POS2 | 64 | TO M I |
| S-TAB | 65 | TO M I |
| CTL_- | 66 | TO M I |
| CTL_+ | 67 | TO M I |
| PHOTO_MODE | 68 | TO M I |
| PB_CTL | 69 | TO M X |

Component labels:
Q6012 2SD1819A (POWER DOWN DETECTOR)
Q6010 UN5212 (INVERTER)
Q6021 2SB1218A (SWITCHING POWER ON-ON)
Q6013 2SD601A (SENSOR LED DRIVE)
IC6007 BA6417F (LOADING MOTOR DRIVE) — OUT1, VM, VCC, FIN, GND, OUT2, VREF, RIN
IC6203 CNB10010RL (TAKEUP REEL SENSOR)

Pin names (left side):
KEY_IN1 P50, POS2 P51, LOAD1 P52, LOAD2 P53, POWER P54, POS1 P61, EJECT P62, TALLY P63, POWER P64, HAMP P66, DENV P65, ROTA P67, KEYSCAN1 P70, KEYSCAN2 P71, KEYSCAN3 P72, KEYSCAN4 P73, P74, DEW+B P75, SLED P76, TREEL P77, ENV P80, DEW P81, P82, SPHOTO P83, BATT P84, KEYAD2 P85, BATT/EXT P86, KEYAD3 P82, KEYAD4 PC0, SREEL PC1, LCDMOD PC2, LIGHT_SCP PC3, STAB P90, CO

*1 TP6011 SERVICE, TP6012, TP6010, NO-MECHA

LINK TO VOLTAGE CHART
LINK TO SIGNAL WAVEFORM
LSJB8204
MAIN II (SYSTEM CONTROL/SERVO) SCHEMATIC DIAGRAM
PV-L453

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

**COMPARISON CHART OF MODELS & MARKS**

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |

| Signal | Pin | |
|---|---|---|
| FG+_CYL | 86 | TO M I |
| PG_CYL | 87 | TO M I |
| M2_CYL | 88 | TO M I |
| VH-_PG | 89 | TO M I |
| VH+_PG | 90 | TO M I |
| VH+_H1_H2_H3 | 91 | TO M I |
| VH-_H3 | 92 | TO M I |
| H3-_CYL | 93 | TO M I |
| H3+_CYL | 94 | TO M I |
| H2-_CYL | 95 | TO M I |
| H2+_CYL | 96 | TO M I |
| H1-_CYL | 97 | TO M I |
| H1+_CYL | 98 | TO M I |
| M3_CYL | 99 | TO M I |
| M1_CYL | 100 | TO M I |

R2029 390
R2025 100
R2028 390
R2030 470
R2026 82
R2027 470

TP6212
C2032 0.1
C2031 0.1
C2030 0.1
C2043 PT
C2042 PT
C2041 PT
R2046 PT
R2045 PT
R2044 PT

IC2003
UNA022400L
(CYLINDER MOTOR DRIVE)

14 NE
13 NB3
12 NC3
11 NB2
10 NC2
9 NB1
8 NC1

1 PC3
2 PB3
3 PC2
4 PB2
5 PC1
6 PB1
7 PE

C2029 PT
C2028 PT
C2027 PT

C2045 0.01[KB]

C2025 0.01[KB]

R2037
C2021 0.047 PT
R2022 220
C2022 0.047
C2024 1[KB]
R2023 0.33

| CYL_VM | 101 | TO M IX |
| SW_CYL_UNREG | 102 | TO M IX |

C2023 0.1[KB]

2017
[KB]

| SYS_VREF | 30 | TO M II |
| CYLON | 23 | TO M II |
| CYL_ERR_PWM0 | 22 | TO M II |

| YPG | 29 | TO M II |
| YFG | 28 | TO M II |

**LINK TO VOLTAGE CHART**
**LSJB8204**
**MAIN III (CYLINDER/CAPSTAN DRIVE) SCHEMATIC DIAGRAM**
**PV-L453**

# MAIN IV (CAMERA I) SCHEMATIC DIAGRAM (D)



**IC301**
MN673241
(DIGITAL SIGNAL PROCESS)

**LINK TO I/O CHART**

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

**COMPARISON CHART OF MODELS & MARKS**

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |

REC VIDEO SIGNAL

| CAMERA_3.5V | 138 | TO M IX |
| CAMERA_4.5V | 139 | TO M IX |
| C_MICOM_3.5V | 140 | TO M I,M V |

R457 PT

BL308
310U

C323 10/6.3V

C321 10/6.3V

(+2.5V REGULATOR)
Q308  2SD1328

R450 390
R451 220
C450 0.01[KB]
R452 2700[D]
R453 100K[D]

C451 1[KB]

IC505
NJM2380AF
(SHUNT REGULATOR)

# IC505 SHUNT REGULATOR
# IC- DETAIL BLOCK DIAGRAM

COMPARATOR
V-REF(2.465V)

**IC301**
MN673241
(DIGITAL SIGNAL PROCESS)

**LINK TO I/O CHART**

VDD25
VSS25
PTESTDRAM0
PTESTDRAM1
FMCIN2
FMCIN3
BLKDATA0
BLKDATA1
VDD3
VSS
BLKDATA2
BLKDATA3
BLKDATA4
BLKDATA5
BLKDATA6
BLKDATA7
BLKADRS0
BLKADRS1
BLKADRS2
BLKADRS3
VSS
VDD25
FMYIN4
FMYIN5
FMYIN6
FMYIN7
CS4
FMCOUT0
FMCOUT1
FMCOUT2
FMCOUT3
DEBUGZ
NDRAMTEST
BISTH
VSS
VDD3

C402 0.01[KB]
C326 0.01
C401 0.01[KB]

| BLKDATA[0] | 141 | TO M V |
| BLKDATA[1] | 142 | TO M V |
| BLKDATA[2] | 143 | TO M V |
| BLKDATA[3] | 144 | TO M V |
| BLKDATA[4] | 145 | TO M V |
| BLKDATA[5] | 146 | TO M V |
| BLKDATA[6] | 147 | TO M V |
| BLKDATA[7] | 148 | TO M V |
| BLKADR[0] | 149 | TO M V |
| BLKADR[1] | 150 | TO M V |
| BLKADR[2] | 151 | TO M V |
| BLKADR[3] | 152 | TO M V |

BLKDATA[0-7]
BLKADR[0-3]

| CAMDSP_CS4 | 153 | TO M V |

R332 PT
R333 0

C320 0.01
TP1

| DIS_IRQ | 154 | TO M V |
| BLKNRE | 155 | TO M V |
| DSPDB[0] | 156 | TO M V |
| DSPDB[1] | 157 | TO M V |
| DSPDB[2] | 158 | TO M V |
| DSPDB[3] | 159 | TO M V |
| DSPDB[4] | 160 | TO M V |
| DSPDB[5] | 161 | TO M V |
| DSPDB[6] | 162 | TO M V |
| DSPDB[7] | 163 | TO M V |

DSPDB[0-7]

**LINK TO VOLTAGE CHART**

**LSJB8204**
**MAIN IV (CAMERA I) SCHEMATIC DIAGRAM**
**PV-L453**

# MAIN V (CAMERA II/LENS DRIVE) SCHEMATIC DIAGRAM (D)

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

**COMPARISON CHART OF MODELS & MARKS**

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |

REC VIDEO SIGNAL(PHOTO MODE)
PB VIDEO SIGNAL(PHOTO MODE)
LINE IMAGE DATA SIGNAL(CAMCORDER↔PC)
IMAGE DATA SIGNAL(SD/MMC↔PC)

| Signal | Pin | Dest |
|---|---|---|
| MICOM_UART_OUT | 193 | TO M I |
| MICOM_UART_IN | 194 | TO M I |
| DIS_IRQ | 154 | TO M IV |
| HD | 125 | TO M VI |
| EVR_MODE | 195 | TO M X |
| VCR-DATA | 16 | TO M II |
| CAM-DATA | 15 | TO M II |
| CAM-CLK | 14 | TO M II |
| CAMERA_3.5V | 138 | TO M IX |
| C_MICOM_3.5V | 140 | TO M IV |
| SD_WP | 196 | TO M I |
| SD_CD/DATA3 | 197 | TO M I |
| SD_IN_L | 198 | TO M I |
| SUBCTL | 199 | TO M VI |
| CAM-CS | 17 | TO M II |
| DSPDB[0] | 156 | TO M IV |
| DSPDB[1] | 157 | TO M IV |
| DSPDB[2] | 158 | TO M IV |
| DSPDB[3] | 159 | TO M IV |
| DSPDB[4] | 160 | TO M IV |
| DSPDB[5] | 161 | TO M IV |
| DSPDB[6] | 162 | TO M IV |
| DSPDB[7] | 163 | TO M IV |
| CAMDSP_CS1 | 104 | TO M IV |
| CAMDSP_CS2 | 103 | TO M IV |
| CAMDSP_CS3 | 112 | TO M IV |
| CAMDSP_CS4 | 153 | TO M IV |
| DSPADR[7] | 130 | TO M IV |
| DSPADR[6] | 131 | TO M IV |
| DSPADR[5] | 132 | TO M IV |
| DSPADR[4] | 133 | TO M IV |
| DSPADR[3] | 134 | TO M IV |
| DSPADR[2] | 135 | TO M IV |
| DSPADR[1] | 136 | TO M IV |
| DSPADR[0] | 137 | TO M IV |
| AF_4.5V | 200 | TO M IX |
| CAMERA_15V | 201 | TO M IX |
| ALC_MAIN+ | 202 | TO M I |
| HOLE_GAIN | 203 | TO M VI |
| VREF_L | 127 | TO M VI |
| HOLE_OFFSET | 204 | TO M VI |
| PWM_OFFSET | 205 | TO M VI |
| IRIS_PWM | 116 | TO M IV |
| HOLE_IN+ | 206 | TO M I |
| HOLE_IN- | 207 | TO M I |
| HOLE_OUT+ | 208 | TO M I |
| HOLE_OUT- | 209 | TO M I |
| ALC_CONT+ | 210 | TO M I |
| MOTOR_VM | 211 | TO M IX |

DSPDB[0-7]
DSPADR[0-7]

IC309
BA10324AFV
(HALL AMP)

Q310 2SD1819A (BUFFER)
Q311 2SD1819A (HALL AMP DRIVE)

**LINK TO VOLTAGE CHART**

**LSJB8204**
**MAIN V (CAMERA II/LENS DRIVE) SCHEMATIC DIAGRAM**
**PV-L453**

# MAIN VI (CCD DRIVE) SCHEMATIC DIAGRAM (D)

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

**COMPARISON CHART
OF MODELS & MARKS**

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |

REC VIDEO SIGNAL

D601
MA111

| CCD_SUB | 214 | TO M I |
| CCD_RESET | 215 | TO M I |
| CCD_H1 | 216 | TO M I |
| CCD_H2 | 217 | TO M I |
| V4_DRIVE_OUT | 218 | TO M I |
| V3_DRIVE_OUT | 219 | TO M I |

R612
10K

R613
10K

Q610
2SC4215
(SWITCHING
CHARGE STOP
ON-OFF)

CCD_15V · 220 · TO M I

L602
15U[J]
[2520]

CAMERA_15V · 201 · TO M IX

R626
18K

C614
1[KB]

(20) VHH (19) VM24 (18) V4O (17) V3O (16) VH (15) GND (14) V3I (13) CH2 (12) V4I (11) NC

IC603
MN3112SA-E1
(CCD-V-DRIVE)

R614
10K

R624
10K

Q611
2SC4215
(SWITCHING
CHARGE STOP
ON-OFF)

C616
0.1[KB]

C617
0.1

R639
1M

(1) SUBO (2) YL (3) V2O (4) VM13 (5) V1O (6) VDD (7) YI (8) CH1 (9) V2I (10) SUBI

| V1_DRIVE_OUT | 221 | TO M I |
| V2_DRIVE_OUT | 222 | TO M I |
| CCD_-8V | 223 | TO M I |

C623
10/16V

R634
PT

R683
100

WF2

C663
10P[DC]

C633
2R2[KB]

C634
2R2[KB]

C636
1

C646
10/6.3V

R646
100

R645
0

R644
33

CAMERA_-8V · 224 · TO M IX

CCDOUT · 225 · TO M I

L605
15U[J]
[2520]

CAMERA_4.5V · 139 · TO M IX

(36) VCC3 (35) GND3 (34) GAMIN (33) AGCOUT (32) NC (31) NC (30) AGCDC (29) NC (28) VCC2 (27) CDSIN2 (26) CDSIN1 (25) GND2 (25) CPOB

PULSEI (24)
NC (23)
DS1 (22)
DS2 (21)
VREFL (20)
VREFH (19)
VREFM (18)
VDD (17)
NC (16)
NC (15)
NC (14)
NC (13)

IC605
AN2109NFHQ
(SAMPLING HOLD&
AGC CONTROL)

C644
0.1

C645
0.1

C642
1[KB]

C643
10/6.3V

VREF_L · 127 · TO M I,M IV,M V

VREF_H · 128 · TO M IV

(1) GND1 (2) SIBOUT (3) NC (4) NC (5) DA1 (6) VCC1 (7) DA2 (8) DA3 (9) DA4 (10) SCK (11) DATA (12) LOAD

R662 1K

SPK_EVR · 226 · TO M VIII

WF4

R685
PT

R686
PT

R687
PT

R688
PT

**LINK TO VOLTAGE CHART**

**LINK TO SIGNAL WAVEFORM**

**LSJB8204
MAIN VI (CCD DRIVE) SCHEMATIC DIAGRAM
PV-L453**

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REC VIDEO SIGNAL      PB VIDEO SIGNAL

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

**COMPARISON CHART OF MODELS & MARKS**

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |



**LINK TO VOLTAGE CHART**

**LINK TO SIGNAL WAVEFORM**

**LSJB8204**
**MAIN VII (VIDEO) SCHEMATIC DIAGRAM**
**PV-L453**

# MAIN VIII (AUDIO) SCHEMATIC DIAGRAM (D)

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

**COMPARISON CHART OF MODELS & MARKS**

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |

T4001
G2A392C00002

C4003
1000P[KB]

R4028 PT

R4027
18K

C4004
4700[JC]

C4008
22/6.3V

C4009
0.1

R4035
100

C4024
PT

C4028
10/6.3V

C4027
0.015[KB]

R4054
43K

Q4009
2SD1819A
(SWITCHING)
SLP-ON

TP4002    TP4003

R4057
10

AUD_P        247    TO M I
AUD_R2       248    TO M I
AUD_R1       249    TO M I
AE_H         250    TO M I

C4026
0.1[KB]
R4043
8200

R4031
1200P[KB]

R4026
33K

C4029
PT

C4041
2200P[KB]

R4025
3300

Q4002
2SD1819A
(SWITCHING)
PB-ON

CTLE_+       251    TO M I

C4030
4R7/6.3V

R4024
3300

Q4003
2SD1819A
(SWITCHING)
PB-ON

29  28  27  26  25

PB_LIN_IN  PB_OUT  PBEQSW  PB NF  PB_IN

R4058
22K

R4059
47K

24  EE/PB
23  EP/SP
22  GND
21  HSW_DRIVE
20  REC/PB
19  DELAY
18  REC_OUT
17  REC NF
16  VCC_CTL
15  MON_OUT
14  PB_CTL
13  CTL+

R4050
39K

R4056
10K

R4051
10K

R4019
22K

R4020
18K

C4035

R4021
2200

22K
R4022

AUTO_FADE_CONT   230   TO M VII
EE-H             212   TO M VII
SLP-H            229   TO M VII

XP4601
Q4001
(SWITCHING)

R4017
12K

R4018
33K

R4013
100K

R4016
560

C4033
2700P[KB]

R4015
560

C4034
0.01[KB]

R4014
43K

R4012
100K

8  9  10  11  12

VREFCTL  CTL OUT  CTL IN  GND_CTL  CTL-

C4039
0.47[KB]

Q4005
2SD1819A
(SWITCHING)
SLP-ON

SP-          252    TO M I
SP+          253    TO M I

R4052
22K

R4011
10K

**LINK TO VOLTAGE CHART**

**LSJB8204**
**MAIN VIII (AUDIO) SCHEMATIC DIAGRAM**
**PV-L453**

# MAIN IX (POWER SUPPLY) SCHEMATIC DIAGRAM (D)

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE 1.5A 24/32V FUSE.
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES
D' INCENDIE N' UTILISERQUE DES FUSIBLE DE MÉME
TYPE 1.5A 24/32V

1.5A 24/32V

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE 2A 24/32V FUSE.
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES
D' INCENDIE N' UTILISERQUE DES FUSIBLE DE MÉME
TYPE 2A 24/32V

2A 24/32V

IMPORT
COMPO
SPECIA
WHEN
USE ON

TO M I  254  BATT_V
TO M I  255  UNREG_POW

2A 24/32V  F1001 K5H202Z00005
24/32V2A  [1608]

1.5A 24/32V  F1002 K5H152Z00006
24/32V1.5A  [1608]

Q1002 UN5113
(SWITCHING POWER ON-ON)

Q1001 UN5111
(SWITCHING POWER ON-ON)

R1001 PT

L1001 NP05DA100M

C1020 1[KB] [N]
C1021 47/16V [D]
C1022 4R7[KB] [3216]

Q1005 2SA2010 (+4.5V CONTROL)
L1002 ELL6SH100M
C1024 4R7/10V [Y]
R1071 47K
C1023 3R3[KB] [N]
D1004 EP10QY03

Q1013 2SA2046 (SWITCHING)
R1062 22K
R1064 4700
D1009 PT
R1063
Q1011 XP4501 (ERROR AMP)
C1051 0.1
R1065 820
R1067 3900[D]
R1068 1800[D]
R1069 33[D]

R1003 1K
C1002 0.1[KB]
R1006 220K
R1007 220K
C1003 0.1[KB]
C1011 4700P[KB]
C1012 2200P[KB]
R1020 470
R1021 470
C1015 100P

C1053 0.1[KB]
R1011 4700
Q1003 UN5115 (BUFFER)
R1012 39K[D]
C1008 100P
C1006 PT

C1014 47P
R1022 5600
C1013 47P
R1026 6800
R1072 47K

Q1006 2SA2046 (+3.5V CONTROL)
L1004 ELL6SH330M
D1013 EP10QY03
C1026 4R7[KB] [N]

IC1001 BA9737KV (PWM CONTROL)

13 STB-4
14 STB-3
15 RT
16 CT
17 SCP
18 GND
19 VREF
20 VCC
21 STB
22 STB-2
23 STB-1
24 DTC-2

48 BIAS-4
47 VCC34
46 OUT-3
45 CAP-L3
44 CAP-H3
43 BIAS-3
42 P-GND
41 OUT-2
40 CAP-L2
39 CAP-H2
38 BIAS-2
37 VCC12

12 FB-3
11 INV-3
10 SCP-3
9 DTC3
8 FB-4
7 INV-4
6 NON-4
5 SCP-4
4 DTC-4
3 OUT-4
2 CAP-H4
1 CAP-L4

25 FB-2
26 INV-2
27 SCP-2
28 FB-1
29 INV-1
30 NON-1
31 SCP-1
32 DTC-1
33 BIAS-1
34 CAP-H1
35 CAP-L1
36 OUT-1

C1005 0.1
C1007 0.1
R1009 22K

Q1007 2SA2046 (CAMERA POWER CONTROL)
C1061 1[KB] [N]
D1005 MA
D1016 MA111
C1056 1[KB] [N]
R1073 47K
C1062 47P
C1057 1[KB] [N]
L1018 ELL6SH101M

R1027 6800
C1017 47P
R1030 6800
C1063 100P
R1029 1K
R1028 470
C1018 4700P[KB]
R1013 2200

<LIGHT CIR>
R1101 0.56 [8G]
R1102 0.56 [8G]
R1108 47K
R1111 22K
R1103 22K
Q1105 2SB1218A (CURRENT DETECTOR)
Q1101 2SA2011 (SWITCHING LIGHT ON-ON)
R1104 56
Q1103 2SB1218A (OVER VOLTAGE PROTECT)
D1102 MA111
R1109 47K
R1105 2200
C1101 2R2[KB]
R1106 560
Q1102 2SD1819A (SWITCHING LIGHT ON-ON)
R1107 5600
R1110 22K
D1101 RD12S[B] (12V)
R1070 PT
NO LIGHT=0

C1009 1[KB]
R1016 20K[D]
R1017 47K[D]
R1019 220K
R1014 PT
C1019 4700P[KB]
R1010 PT
C1010 0.1[KB]

Q1008 2SA2046 (+4.5V CONTROL)
L1003 ELL6SH330M
R1074 47K
D1014 EP10QY03
C1037 4R7[KB]

<LCD CIR>

Q100 2SA
R1044 4700
C1039 1000P[KB]
R1045 270 [6G]
D1008 MA111
R1046 2200
Q1010 2SB1218A (SWIT

TO M I  256  LIGHT_UNREG

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NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,
USE ONLY THE SPECIFIED PARTS.

**COMPARISON CHART OF MODELS & MARKS**

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |

| Signal | Pin | Destination |
|---|---|---|
| EXT-DC | 41 | TO M II |
| UNREG | 38 | TO M I,M II |
| LIGHT_SCP | 43 | TO M II |
| SW_UNREG | 42 | TO M II |
| VOLT-DOWN | 45 | TO M II |
| SYS_REG_4.5V | 37 | TO M I,M II |
| POWER_ON-L | 39 | TO M II |
| LIGHT_ON-H | 40 | TO M II |
| LCD_BL_CONT | 44 | TO M II |
| SERVO_REG_4.5V | 85 | TO M III |
| CAP_VM | 84 | TO M III |
| CYL_VM | 101 | TO M III |
| TRI.WAVE | 83 | TO M III |
| SW_CYL_UNREG | 102 | TO M III |
| VIDEO_REG_4.5V | 231 | TO M I,M VII |
| EVF_4.5V | 257 | TO M I |
| AUDIO_REG_4.5V | 243 | TO M I,M VIII |
| SPK_4.5V | 245 | TO M VIII |
| CAMERA_3.5V | 138 | TO M I,M IV,M V |
| CAMERA_A3.5V | 108 | TO M IV,M VI |
| CAMERA_15V | 201 | TO M V,M VI |
| CAMERA_4.5V | 139 | TO M IV,M VI,M X |
| CAMERA_-8V | 224 | TO M VI |
| PC_5V | 258 | TO M I |
| MOTOR_VM | 211 | TO M V |
| AF_4.5V | 200 | TO M I,M V |
| LCD_-15V | 259 | TO M I |
| EVF/LCD_15V | 260 | TO M I |
| BL_4.5V | 261 | TO M I |
| CAP_SW | 82 | TO M III |

**LINK TO VOLTAGE CHART**

LSJB8204
**MAIN IX (POWER SUPPLY) SCHEMATIC DIAGRAM**
**PV-L453**

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# MAIN X (EVR CONNECTOR) SCHEMATIC DIAGRAM (D)

| TO M VI | 213 | IRIS_TEST |
| TO M IX | 139 | CAMERA_4.5V |
| TO M V | 195 | EVR_MODE |
| TO M V | 165 | EVR_TO_CAM |
| TO M V | 166 | CAM_TO_EVR |
| TO M V | 164 | EVR_SCK |
| TO M IV | 124 | EVR_VD |
| TO M V | 167 | JIG_RESET |
| TO M IV | 111 | CAMERA_Y |
| TO M II | 3 | H-SW |
| TO M II | 57 | LOAD0 |
| TO M II | 56 | LOAD1 |
| TO M I | 60 | S-REEL |
| TO M II | 69 | PB_CTL |
| TO M I | 59 | S-PHOTO+ |
| TO M II | 31 | CAP_FG_CLK |
| TO M VII | 227 | FH |
| TO M VII | 237 | PBIN |
| TO M VII | 242 | YNR |
| TO M VII | 236 | CENV |
| TO M VII | 234 | B-Y_C.EVF |
| TO M VII | 238 | REC_C |
| TO M VII | 239 | REC_Y |
| TO M I | 262 | M_VCOM |
| TO M I | 263 | M_B |
| TO M I | 264 | M_G |
| TO M I | 265 | M_R |

(TRAP MONITOR)

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

**COMPARISON CHART
OF MODELS & MARKS**

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |

SIS GND

| | |
|---|---|
| 1 | GND |
| 2 | IRIS_TEST |
| 3 | GND |
| 4 | |
| 5 | IRIS_O/C |
| 6 | EVR_MODE |
| 7 | JIG_5V |
| 8 | EVR_TO_CAM |
| 9 | EVR_VD |
| 10 | CAM_TO_EVR |
| 11 | JIG_RESET |
| 12 | EVR_SCK |
| 13 | NC |
| 14 | Y_OUT |
| 15 | M_VCOM |
| 16 | M_B |
| 17 | M_G |
| 18 | M_R |
| 19 | SREEL |
| 20 | SYS_RESET |
| 21 | |
| 22 | PB_CTL |
| 23 | S-PHOTO |
| 24 | CAP_FG_CLK |
| 25 | TRAP_MONITOR |
| 26 | FH |
| 27 | PBIN |
| 28 | YNR |
| 29 | CENV |
| 30 | H-SW |
| 31 | GND |
| 32 | REC_C |
| 33 | REC_Y |
| 34 | GND |
| 35 | LOAD0 |
| 36 | LOAD1 |

TO TP BOARD(FOR EVR ADJUSTMENT)

**WF17**

**WF15**

**S301**

VIDEO GND

**LINK TO SIGNAL WAVEFORM**

**LSJB8204**
**MAIN X (EVR CONNECTOR) SCHEMATIC DIAGRAM**
**PV-L453**

## 8.4. LCD SCHEMATIC DIAGRAMS

### LCD I (LCD POWER) SCHEMATIC DIAGRAM



**LINK TO VOLTAGE CHART**

◀ VIDEO SIGNAL

LCD_3V — 7 — **TO LCD II**

**Q1214**
2SD1819A
( SWITCHING
LCD ON-ON )

SW_3V — 8 — **TO LCD II**

**Q1203**
UN5112
( ERROR
VOLTAGE DET )

● TP1203

LCD_12V — 9 — **TO LCD II**

**1206**
SB1218A
WITCHING
CD ON-ON )

D1205
MA8100-H (10V)

**Q1208**
2SD1819A
+7.5V
( REGULATOR )

● TP1204

LCD_7.5V — 10 — **TO LCD II**

R1217
1K

C1206
0.1

R1218
22K

D1206
MA8068-M
(6.8V)

R1216
22K

R1219
820

C1208
0.1

**Q1204**
2SD1819A
( SWITCHING
LCD ON-ON )

R1213
10K

**Q1209**
2SD1819A
ERROR
( VOLTAGE DET )

R1214
4700

C1207
0.1

R1220
5600

R1222
39K

**Q1213**
2SD2351
+5V
( REGULATOR )

● TP1205

L1202   15U

26

C1209
0.1

C1210
0.01

D1203
MA8056-L
(5.6V)

C1211
0.1

LCD_5V — 11 — **TO LCD II**

LCD_-15V — 12 — **TO LCD II**

**Q1211**
UN5213
( SWITCHING
LCD ON-ON )

BL_4.5V — 13 — **TO LCD II**

**LSJB8206**
**LCD I (LCD POWER) SCHEMATIC DIAGRAM**
**VM-L153/PV-L353/PV-L353-K/PV-L453**

# LCD II (LCD DRIVE) SCHEMATIC DIAGRAM

VIDEO SIGNAL

TO LCD I  10  LCD_7.5V
TO LCD I  9   LCD_12V
TO LCD I  11  LCD_5V
TO LCD I  8   SW_3V

TO LCD I  1  LCD_LOAD  R9004 1K
TO LCD I  2  LCD_CLK   R9005 1K
TO LCD I  3  LCD_DATA  R9006 1K

TO LCD I  7  LCD_3V

TO LCD I  4  Y

TO LCD I  5  B-Y
TO LCD I  6  R-Y

TO LCD I  12  LCD_-15V

TO LCD I  13  BL_4.5V

L9007 15U[J]
L9006 15U[J]
L9001 15U[J]
L9003 15U[J]
L9005 15U[J]

R9053 PT
C9054 0.1
PT C9005

C9014 1500P[KB]
R9014 15K
C9013 2R2[KB]
R9015 12K
C9016 10/6.3V

R9057 PT

C9003 PT
R9059 PT
IC9003 PT
R9060 PT
R9058

TP9006
R9017 0
R9018 0
R9019 0

WF21  WF19
WF20

IC9001
AN2545FHQ
RGB SIGNAL
PROCESS/LCD
PANEL INDICATOR
CONTROL

TP9001
TP9003   TP9002

C9008 0.1
R9054 2200
C9009 22/6.3V
C9003 4R7/6.3V
R9013 560
C9010 680P
R9055 PT
R9010 100
Q9053 2SB1218A (BUFFER)
C9007 1
R9011 100
C9011 0.1
R9012 100
C9012 0.1
C9015 4R7/6.3V

C9019 4R7/16V  C9056 PT
R9020 100
C9021 100
R9021
C9020 1
R9022 100
R9016 10K
R9025 6800
C9022 2R2

TP9007
WF22
R9023 47K

C9017 1   C9018 0.1

C9024 2R2
R9028 22K
IC9002 TA75S558FTE (OP.AMP)
VDD  VEE
R9026 47K
R9024 100K
C9057 PT
C9023 2R2
R9027 4700

PR9051 K5H1022A0003

L9051 SLF6020T680M
Q9051 2SD1119 (SWITCHING)
C9052 0.015
T9051 ETJV10ZA17AF
R9051 1800
Q9052 2SD1119 (SWITCHING)
C9058 PT
C9051 10
TP9004
C9053 15P
C9055 15P
TP9005

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T SAFETY NOTICE:
NTS IDENTIFIED BY THE SIGN ⚠ HAVE
HARACTERISTICS IMPORTANT FOR SAFETY.
LACING ANY OF THESE COMPONENTS,
THE SPECIFIED PARTS.

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

LCD PANEL UNIT

FP9002    PT

| 24 | STH1 |
| 23 | OEH |
| 22 | Q2H |
| 21 | CLK1 |
| 20 | CLK2 |
| 19 | CLK3 |
| 18 | GND |
| 17 | B |
| 16 | G |
| 15 | R |
| 14 | VB |
| 13 | RL |
| 12 | STH2 |
| 11 | VEE |
| 10 | VCOM |
| 9 | VGH |
| 8 | VDD |
| 7 | STV2 |
| 6 | OEV |
| 5 | CPV |
| 4 | UD |
| 3 | STV1 |
| 2 | VSS |
| 1 | VGL |

LCD PANEL UNIT

FP9001    LSJSRF24DG

| 24 | STH1 |
| 23 | OEH |
| 22 | Q2H |
| 21 | CLK1 |
| 20 | CLK2 |
| 19 | CLK3 |
| 18 | GND |
| 17 | B |
| 16 | G |
| 15 | R |
| 14 | VB |
| 13 | RL |
| 12 | STH2 |
| 11 | VEE |
| 10 | VCOM |
| 9 | VGH |
| 8 | VDD |
| 7 | STV2 |
| 6 | OEV |
| 5 | CPV |
| 4 | UD |
| 3 | STV1 |
| 2 | VSS |
| 1 | VGL |

C9033
PT

IC9003
PT
VDD
VEE

R9059
PT

R9060
PT

R9030
10K

C9027
0.1

R9031
10K

R9058
0

WF20

R9023    47K

L9005
15U[J]

C9024
2R2

C9026
2R2

R9028
22K

C9025
150P

Q9005
PT
(SWITCHING)

R9052
1K

R9033
PT

IC9002
TA75S558FTEL
(OP.AMP)
VDD
VEE

Q9004
PT
(SWITCHING)

C9028
1

C9032
0.1

C9034
PT

R9024
00K

R9026
47K

C9057
PT

C9023
2R2

R9027
4700

C9029
0.1

C9030
PT

C9031
10/6.3 V

R9029
12K

R9032
15K

AF

TP9004

C9053
15P

C9055
15P

TP9501

⚠
BACK LIGHT UNIT
LSXY0404
BACK LIGHT

TP9005

TP9502

**LINK TO VOLTAGE CHART**

**LINK TO SIGNAL WAVEFORM**

**LSJB8206**
**LCD II (LCD DRIVE) SCHEMATIC DIAGRAM**
**VM-L153/PV-L353/PV-L353-K/PV-L453**

## BATTERY CATCHER I SCHEMATIC DIAGRAM (A,B,C)

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ H
SPECIAL CHARACTERISTICS IMPORTANT FOR
WHEN REPLACING ANY OF THESE COMPONEN
USE ONLY THE SPECIFIED PARTS.

**\*2** NOTE:
WRONG REF. NOS. ARE PRINTED ON SUFFIX(VERSION) NUMBER ②
OF BATTERY CATCHER C.B.A. BY MISTAKE.
ON RUNNING CHANGE BASIS, SUFFIX(VERSION) NUMBER WILL BE
CHANGED FROM ② TO ③ AND THESE REF. NOS. WILL BE CORREC

| Wrong | Correct |
|-------|---------|
| D1203 | D1213 |
| D1205 | D1215 |
| L1202 | L1212 |

TO MAIN C.B.A.
FP2

| Signal | Pin |
|--------|-----|
| UNREG_GND | 26 |
| UNREG_GND | 25 |
| UNREG_GND | 24 |
| UNREG_GND | 23 |
| BACK_UP | 22 |
| AUDIO_L | 21 |
| UNREG | 20 |
| UNREG | 19 |
| UNREG | 18 |
| UNREG | 17 |
| BATT_V | 16 |
| VIDEO_OUT | 15 |
| GND | 14 |
| Y_IN | 13 |
| NC | 12 |
| EVF_3.5V | 11 |
| BL_4.5V | 10 |
| EVF_SCLK | 9 |
| EVF_DATA | 8 |
| EVF_LOAD | 7 |
| EVF_GND | 6 |
| EVF/LCD_15V | 5 |
| M_R_OUT | 4 |
| M_G_OUT | 3 |
| M_B_OUT | 2 |
| M_VCOM | 1 |

| Pin | Signal |
|-----|--------|
| 1 | UNREG_GND |
| 2 | UNREG_GND |
| 3 | UNREG_GND |
| 4 | BACK_UP |
| 5 | AUDIO_L |
| 6 | UNREG |
| 7 | UNREG |
| 8 | UNREG |
| 9 | BATT_V |
| 10 | VIDEO_OUT |
| 11 | GND |
| 12 | Y_IN |
| 13 | 232C_GND |
| 14 | MICOM_UART_OUT |
| 15 | MICOM_UART_IN |
| 16 | PC_5V |
| 17 | SD_CD/DATA3 |
| 18 | CMD |
| 19 | SD_IN_L |
| 20 | SD_CLK |
| 21 | SD_DATA |
| 22 | SD_WP |
| 23 | CAMERA_3.5V |
| 24 | BL_4.5V |
| 25 | EVF_SCLK |
| 26 | EVF_DATA |
| 27 | EVF_LOAD |
| 28 | EVF_GND |
| 29 | EVF/LCD_15V |
| 30 | M_R_OUT |
| 31 | M_G_OUT |
| 32 | M_B_OUT |
| 33 | M_VCOM |

**\*3**

| | Pin | Signal |
|---|-----|--------|
| TO BC II | 1 | M_VCOM |
| TO BC II | 2 | M_B_OUT |
| TO BC II | 3 | M_G_OUT |
| TO BC II | 4 | M_R_OUT |
| TO BC II | 5 | EVF/LCD_15V |
| TO BC II | 6 | Y_IN |
| TO BC II | 7 | EVF_LOAD |
| TO BC II | 8 | EVF_DATA |
| TO BC II | 9 | EVF_SCLK |
| TO BC II | 10 | BL_4.5V |
| TO BC II | 11 | EVF_3.5V |

R12
1K

R44
560

C4
22

SAFETY NOTICE:
S IDENTIFIED BY THE SIGN ⚠ HAVE
RACTERISTICS IMPORTANT FOR SAFETY.
CING ANY OF THESE COMPONENTS,
E SPECIFIED PARTS.

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

**COMPARISON CHART OF MODELS & MARKS**

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |

FFIX(VERSION) NUMBER ②
KE.
ERSION) NUMBER WILL BE
REF. NOS. WILL BE CORRECTED.

**\*3** NOTE:
BATTERY CATCHER C.B.A. ARE SUPPLIED INDIVIDUALY AS REPLACEMENT PARTS.
HOWEVER, ONLY THE PARTS ENCLOSED IN DASHED LINES ARE NOT SUPPLIED.
WHEN REPLACING THESE PARTS, REPLACE BATTERY CATCHER C.B.A. INSTEAD OF
INDIVIDUAL PARTS.

◀ REC VIDEO SIGNAL  ◁ PB VIDEO SIGNAL  ◀ REC AUDIO SIGNAL  ◀ PB AUDIO SIGNAL

**LSJB8207**
**BATTERY CATCHER I SCHEMATIC DIAGRAM**
**VM-L153/PV-L353/PV-L353-K**

# BATTERY CATCHER II SCHEMATIC DIAGRAM (A,B,C)

TO BC I — 10 — BL_4.5V

TO BC I — 1 — M_VCOM

TO BC I — 2 — M_B_OUT

TO BC I — 3 — M_G_OUT

TO BC I — 4 — M_R_OUT

TO BC I — 5 — EVF/LCD_15V

TO BC I — 11 — EVF_3.5V

TO BC I — 6 — Y_IN

TO BC I — 7 — EVF_LOAD

TO BC I — 8 — EVF_DATA

TO BC I — 9 — EVF_SCLK

R910 1K
R911 1K
R912 1K
R913 1K
R915
R916 10
R917 10
R918 10

D901 (7.5V) MAZ80750ML

Q901 2SD1819A (+7V REGULATOR)

C901 0.1
R902 10K
C902 0.01
R908 3300
R909 5600

Q903 2SD1819A (OVER VOLTAGE DET)

C911 PT
C913 4R7/16V
C925 PT
C924 PT
C923 PT

C922 1

C915 0.01
C917
C918 0.47
C919
C920
C921 0.47

48 47 46 45 44 43 42 41 40 39 38 37 36 35 34

L901 15U[J]
C903 10/6.3V

49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64

R901 0
Q902 2SD1819A (BUFFER)
R906 1K
C904 1
C905 1
C906 1
C907 1
C908 0.47
C909 0.01
C910 0.33
R907 1K

IC901
LV4150WM-MPB
(EVF SIGNAL PROCESS)

L902 PT

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

C912 0.1
C914 6800P
R914 10K
C916 1
R922 0
C920 PT

R903 1K
R904 1K
R905 1K

**LINK TO VOLTAGE CHART**

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

**COMPARISON CHART
OF MODELS & MARKS**

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |

← REC VIDEO SIGNAL   ⇐ PB VIDEO SIGNAL

R915 — 0
R916 — 100
R917 — 100
R918 — 100

C925 PT
C924 PT
C923 PT

R923 PT   R925 PT   R927 PT
R924 PT   R926 PT   R928 PT

C919 0.47
C921 0.47

**FP901   (TO EVF UNIT)**

| 22 | BL_4.5V |
| 21 | BL_SW |
| 20 | VCOM |
| 19 | CKV1 |
| 18 | CKV2 |
| 17 | STV |
| 16 | XSTV |
| 15 | XENB |
| 14 | ENB |
| 13 | CKH2 |
| 12 | XDSG |
| 11 | DSG |
| 10 | B |
| 9 | R |
| 8 | G |
| 7 | VDD |
| 6 | DSD |
| 5 | CKH1 |
| 4 | VSS |
| 3 | VSS |
| 2 | STH |
| 1 | XSTH |

50WM-MPB
(SIGNAL PROCESS)

R920 0
R921 0

R919 PT

C920 PT

Q904
UN5212
(BACK LIGHT DRIVE)

**LSJB8207
BATTERY CATCHER II SCHEMATIC DIAGRAM
VM-L153/PV-L353/PV-L353-K**

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# BATTERY CATCHER I SCHEMATIC DIAGRAM (D)

**\*2** NOTE:
WRONG REF. NOS. ARE PRINTED ON SUFFIX(VERSION) NUMBER ②
OF BATTERY CATCHER C.B.A. BY MISTAKE.
ON RUNNING CHANGE BASIS, SUFFIX(VERSION) NUMBER WILL BE
CHANGED FROM ② TO ③ AND THESE REF. NOS. WILL BE CORRECTED

| Wrong | Correct |
|-------|---------|
| D1203 | D1213 |
| D1205 | D1215 |
| L1202 | L1212 |

REC...
REC...
PB V...

R1201
1K

R4419
560

C4422
2200P

D1215
RD20S
(20V)

**\*2**

## TO MAIN C.B.A. FP2

| | | | | |
|---|---|---|---|---|
| UNREG_GND | 37 | | | |
| UNREG_GND | 36 | | UNREG_GND | 1 |
| UNREG_GND | 35 | | UNREG_GND | 2 |
| UNREG_GND | 34 | | UNREG_GND | 3 |
| BACK_UP | 33 | | BACK_UP | 4 |
| AUDIO_L | 32 | | AUDIO_L | 5 |
| UNREG | 31 | | UNREG | 6 |
| UNREG | 30 | | UNREG | 7 |
| UNREG | 29 | | UNREG | 8 |
| UNREG | 28 | | BATT_V | 9 |
| BATT_V | 27 | | VIDEO_OUT | 10 |
| VIDEO_OUT | 26 | | GND | 11 |
| GND | 25 | | Y_IN | 12 |
| Y_IN | 24 | | 232C_GND | 13 |
| 232C_GND | 23 | | MICOM_UART_OUT | 14 |
| MICOM_UART_OUT | 22 | | MICOM_UART_IN | 15 |
| MICOM_UART_IN | 21 | | PC_5V | 16 |
| PC_5V | 20 | | SD_CD/DATA3 | 17 |
| SD_CD/DATA3 | 19 | | CMD | 18 |
| CMD | 18 | | SD_IN_L | 19 |
| SD_IN_L | 17 | | SD_CLK | 20 |
| SD_CLK | 16 | | SD_DATA | 21 |
| SD_DATA | 15 | | SD_WP | 22 |
| SD_WP | 14 | | CAMERA_3.5V | 23 |
| CAMERA_3.5V | 13 | | BL_4.5V | 24 |
| BL_4.5V | 12 | | EVF_SCLK | 25 |
| EVF_SCLK | 11 | | EVF_DATA | 26 |
| EVF_DATA | 10 | | EVF_LOAD | 27 |
| EVF_LOAD | 9 | | EVF_GND | 28 |
| EVF_GND | 8 | | EVF/LCD_15V | 29 |
| EVF/LCD_15V | 7 | | M_R_OUT | 30 |
| M_R_OUT | 6 | | M_G_OUT | 31 |
| M_G_OUT | 5 | | M_B_OUT | 32 |
| M_B_OUT | 4 | | M_VCOM | 33 |
| M_VCOM | 3 | | | |
| NC | 2 | | | |
| NC | 1 | | | |

**\*3**

| TO BC II | | |
|----------|---|------------|
| 1 | M_VCOM | |
| 2 | M_B_OUT | |
| 3 | M_G_OUT | |
| 4 | M_R_OUT | |
| 5 | EVF/LCD_15V | |
| 6 | Y_IN | |
| 7 | EVF_LOAD | |
| 8 | EVF_DATA | |
| 9 | EVF_SCLK | |
| 10 | BL_4.5V | |
| 11 | EVF_3.5V | |

**LINK TO VOLTAGE CHART**

R522
3300

R523
10K

C521
10/6.3V

L504
BK1608HM102

L503
BK1608HM1...

R517
10K

16 15 14 13 12 11 10 9
VCC GND T1O R1I R1O T1I T2I R2O

C522
0.1

IC503
ADM3202A...
(RS232C DR...

1 2 3 4 5 6 7 8
C1+ V+ C1- C2+ C2- V- T2O R2I

C525
0.1

C523
0.1
C524
0.1

L506  22U

C526
10/6.3...

R515  1K

R510  1K

R513  0

R512  0

R508
R507

123

AFETY NOTICE:
IDENTIFIED BY THE SIGN ⚠ HAVE
ACTERISTICS IMPORTANT FOR SAFETY.
ING ANY OF THESE COMPONENTS,
SPECIFIED PARTS.

K(VERSION) NUMBER ②

SION) NUMBER WILL BE
NOS. WILL BE CORRECTED.

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

**\*3** NOTE:

BATTERY CATCHER C.B.A. ARE SUPPLIED INDIVIDUALLY AS REPLACEMENT PARTS.
HOWEVER, ONLY THE PARTS ENCLOSED IN DASHED LINES ARE NOT SUPPLIED.
WHEN REPLACING THESE PARTS, REPLACE BATTERY CATCHER C.B.A. INSTEAD OF
INDIVIDUAL PARTS.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

**COMPARISON CHART
OF MODELS & MARKS**

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |

REC VIDEO SIGNAL  PB VIDEO SIGNAL  REC AUDIO SIGNAL  PB AUDIO SIGNAL
REC VIDEO SIGNAL(PHOTO MODE)  LINE IMAGE DATA SIGNAL(CAMCORDER ↔PC)
PB VIDEO SIGNAL(PHOTO MODE)  IMAGE DATA SIGNAL(SD/MMC ↔PC)

R1201
1K

C1202
0.1
C1203
0.1

L1201
J0JHC0000054

C1201
PT  **\*2**

L1212
J0JHC0000054

DC JACK

R4419
560

D1204
RD20S
(20V)

PR1201
K5H402Z00003

4A

C4422
2200P  **\*2**

D1215
RD20S
(20V)

BATTERY
+
-

D1213
RD12S (12V)  **\*2**

COIN BATTERY

R4423
PT

R4420  0

AVJACK

GND  1

L4421
BK1608HM102

AUDIO  2

L4422
BK1608HM102

VIDEO  3

7

**\*3**

C521
10/6.3V

L504
BK1608HM102

L503
BK1608HM102

R570
LSRJ0002

1  TXD

2  PCSGND

RS232C
PC JACK

L505
BK1608HM102

3  RXD

15 14 13 12 11 10 9

GND  T1O R1O T1I  T2I R2O

R517
10K

R571
LSRJ0002

JK6501
LSJJ0185

IC503
ADM3202ARU
(RS232C DRIVE)

2 3 4 5 6 7 8
V+ C1+ C1- C2+ C2- V- T2O R2I

C525
0.1

C523  C524
0.1  0.1

L506  22U

C526
10/6.3V

R509
10K

R511
47K

R516
10K

R514
10K

R525
100K

R506
100K

710
K1NA09800002

R515  1K

12  WP

R510  1K

11  COMMON

10  SD_IN_L

9  DAT2

8  DAT1

R513  0

7  DAT

6  GND

R512  0

5  CLK

4  VDD

3  GND

2  CMD

R508  0

R507  0

1  DAT3

SD CARD SLOT

**LSJB8207
BATTERY CATCHER I SCHEMATIC DIAGRAM
PV-L453**

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# BATTERY CATCHER II SCHEMATIC DIAGRAM (D)

TO BC I  10  BL_4.5V
TO BC I  1  M_VCOM
TO BC I  2  M_B_OUT
TO BC I  3  M_G_OUT
TO BC I  4  M_R_OUT
TO BC I  5  EVF/LCD_15V
TO BC I  11  EVF_3.5V
TO BC I  6  Y_IN
TO BC I  7  EVF_LOAD
TO BC I  8  EVF_DATA
TO BC I  9  EVF_SCLK

R910  1K
R911  1K
R912  1K
R913  1K
R915
R916  10
R917  10
R918  10

D901  (7.5V)
MAZ80750ML

Q901
2SD1819A
(+7V
REGULATOR)

Q903
2SD1819A
(OVER
VOLTAGE DET)

C901
0.1

R902
10K

C902
0.01

R908
3300

R909
5600

C922
1

C911
PT

C913
4R7/16V

C925
PT

C924  PT

C923
PT

C915
0.01

C917

C918
0.47

C919

0.47

C921
0.47

48 47 46 45 44 43 42 41 40 39 38 37 36 35 34

L901
15U[J]

C903
10/6.3V

49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64

R901
0

Q902
2SD1819A
(BUFFER)

R906
1K

C904
1

C905  1
C906  1
C907  1
C908  0.47
C909  0.01
C910  0.33

R907
1K

IC901
LV4150WM-MPB
(EVF SIGNAL PROCESS)

L902
PT

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

C912
0.1

C914
6800P

R914
10K

R922
0

C920
PT

C916
1

R903  1K
R904  1K
R905  1K

**LINK TO VOLTAGE CHART**

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NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

**COMPARISON CHART OF MODELS & MARKS**

| MODEL | MARK |
|-------|------|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |

◀━ REC VIDEO SIGNAL    ◁ PB VIDEO SIGNAL

R915 — 0
R916 — 100
R917 — 100
R918 — 100

C925 PT
C924 PT
R923 PT    R925 PT    R927 PT

C923 PT
R924 PT    R926 PT    R928 PT

C919 0.47    C921 0.47

42 41 40 39 38 37 36 35 34 33

32
31
30
29
28
27
26
25
24
23
22
21
20
19
18
17

**1**
**50WM-MPB**
**(SIGNAL PROCESS)**

R920 0
R921 0

**FP901    (TO EVF UNIT)**

| 22 | BL_4.5V |
|----|---------|
| 21 | BL_SW |
| 20 | VCOM |
| 19 | CKV1 |
| 18 | CKV2 |
| 17 | STV |
| 16 | XSTV |
| 15 | XENB |
| 14 | ENB |
| 13 | CKH2 |
| 12 | XDSG |
| 11 | DSG |
| 10 | B |
| 9 | R |
| 8 | G |
| 7 | VDD |
| 6 | DSD |
| 5 | CKH1 |
| 4 | VSS |
| 3 | VSS |
| 2 | STH |
| 1 | XSTH |

7 8 9 10 11 12 13 14 15 16

C920 PT

R919 PT

Q904
UN5212
(BACK LIGHT DRIVE)

**LSJB8207**
**BATTERY CATCHER II SCHEMATIC DIAGRAM**
**PV-L453**

## 8.6.  HEAD AMP SCHEMATIC DIAGRAM

**HEAD AMP SCHEMATIC DIAGRAM**

**"FOR REFERENCE ONLY"**

NOTE:
HEAD
SUPP



IC3502
(HEAD AMP)

TO MAIN C.B.A.
FP6   A,B,C

TO MAIN C.B.A.
FP6   D

**FP3501**

| | |
|---|---|
| PB VIDEO | 12 |
| REC VIDEO | 11 |
| ENV-VOLTAGE | 10 |
| ENVELOPE DET | 9 |
| VIDEO DELAY REC(H) | 8 |
| REG+4.5V | 7 |
| HEAD AMP SW | 6 |
| HEAD SW | 5 |
| FLYING ERASE ON(L) | 4 |
| REG+4.5V | 3 |
| GND | 2 |
| GND | 1 |

TP3303
TP3302
L3301
TP3301
C3301
R3301
C3302
R3302
L3302
C3303
C3304
R3305
C3305
Q3301
SWITC
FLYING
ERASE

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NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

**COMPARISON CHART
OF MODELS & MARKS**
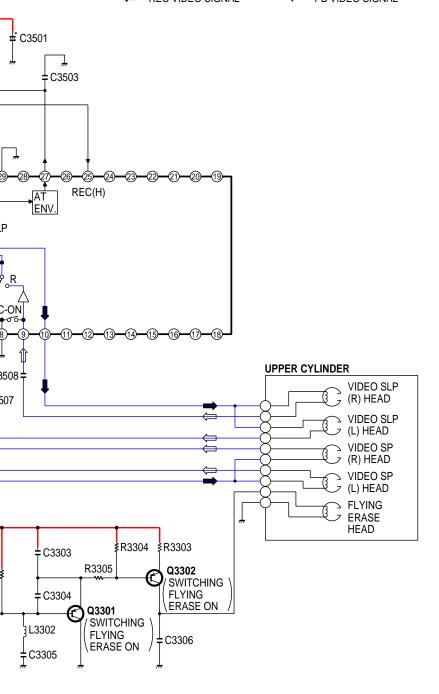
| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |

NOTE:
HEAD AMP IS NOT SERVICEABLE AND IS
SUPPLIED AS A CYLINDER UNIT ONLY FOR REPLACEMENT.

◄ REC VIDEO SIGNAL          ⇐ PB VIDEO SIGNAL

C3501

C3503

29 28 27 26 25 24 23 22 21 20 19

AT ENV.          REC(H)

LP

R

C-ON

8 9 10 11 12 13 14 15 16 17 18

3508

507

**UPPER CYLINDER**

VIDEO SLP
(R) HEAD

VIDEO SLP
(L) HEAD

VIDEO SP
(R) HEAD

VIDEO SP
(L) HEAD

FLYING
ERASE
HEAD

C3303          R3304   R3303

R3305          **Q3302**
(SWITCHING
FLYING
ERASE ON)

C3304

**Q3301**
(SWITCHING
FLYING
ERASE ON)

L3302          C3306

C3305

**HEAD AMP SCHEMATIC DIAGRAM**
**VM-L153/PV-L353/PV-L353-K/PV-L453**

## 8.7. LCD SHAFT UNIT/CCD/MICROPHONE UNIT SCHEMATIC DIAGRAMS

## LCD SHAFT UNIT

**"FOR REFERENCE ONLY"**

NOTE:
LCD SHAFT UNIT IS NOT SERVICEABLE AND IS
SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.



## CCD C.B.A.

**"FOR REFERENCE ONLY"**

NOTE:
CCD C.B.A. IS NOT SERVICEABLE AND IS SUPPLIED
AS UNIT ONLY FOR REPLACEMENT.

**AMS**

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

**COMPARISON CHART OF MODELS & MARKS**

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |

## MICROPHONE UNIT
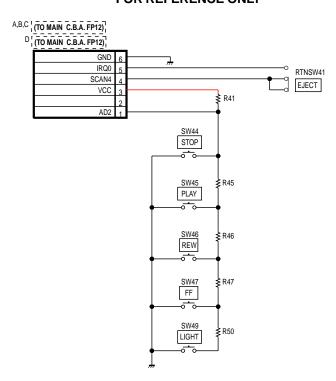
### "FOR REFERENCE ONLY"

NOTE:
MICROPHONE UNIT IS NOT SERVICEABLE AND IS
SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.



**LCD SHAFT UNIT**
**MICROPHONE UNIT**
**CCD C.B.A.**
**VM-L153/PV-L353/PV-L353-K/PV-L453**

## 8.8. TOP OPERATION UNIT/SIDE L OPERATION UNIT/MECHANISM FPC UNIT SC

### TOP OPERATION UNIT

**"FOR REFERENCE ONLY"**

NOTE:
TOP OPERATION UNIT IS NOT SERVICEABLE AND IS
SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.

SID

A,B,C **(TO MAIN C.B.A. FP12)**
D **(TO MAIN C.B.A. FP12)**

| | |
|---|---|
| GND | 6 |
| IRQ0 | 5 |
| SCAN4 | 4 |
| VCC | 3 |
| | 2 |
| AD2 | 1 |

RTNSW41
EJECT

R41

SW44
STOP

SW45
PLAY
R45

SW46
REW
R46

SW47
FF
R47

SW49
LIGHT
R50

### MECHANISM FPC UNIT

**"FOR REFERENCE ONLY"**

NOTE:
MECHANISM FPC UNIT IS NOT SERVICEABLE AND IS
SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.

**(TO MAIN C.B.A. FP7)** A,B,C

**(TO MAIN C.B.A. FP7)** D

| | |
|---|---|
| GND | 1 |
| SAFETY TAB BROKEN(H) | 2 |
| MODE SW POSITION 2 | 3 |
| MODE SW POSITION 1 | 4 |
| GND | 5 |
| REG +4.5V | 6 |
| GND | 7 |
| SUPPLY REEL PULSE | 8 |
| CASSETTE DOWN(L) | 9 |
| GND | 10 |
| GND | 11 |
| SENSOR LED ON(H) | 12 |
| GND | 13 |
| SUPPLY PHOTO TR(L) | 14 |

SAFETY
TAB SW

MODE
SELECT
SW

CASSETTE
UP/DOWN SW

SENEOR
LED

SUPPLY REEL
SENSOR

SUPPLY
PHOTO TR

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# FPC UNIT SCHEMATIC DIAGRAMS

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

| COMPARISON CHART OF MODELS & MARKS | |
|---|---|
| MODEL | MARK |
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |

## SIDE L OPERATION UNIT
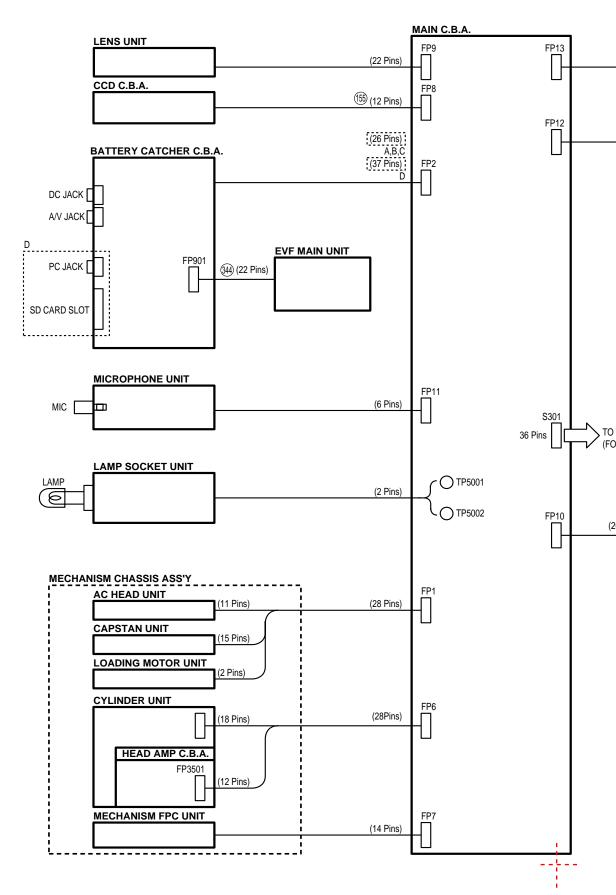
### "FOR REFERENCE ONLY"

NOTE:
SIDE L OPERATION UNIT IS NOT SERVICEABLE AND IS
SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.



A,B,C (TO MAIN C.B.A. FP13)
D (TO MAIN C.B.A. FP13)

| Pin | Signal |
|---|---|
| 16 | GND |
| 15 | DEW |
| 14 | SCAN3 |
| 13 | SCAN1 |
| 12 | PHOTO MODE |
| 11 | GND |
| 10 | SCNA2 |
| 9 | GND |
| 8 | POWER SW |
| 7 | REC SW |
| 6 | GND |
| 5 | AD4 |
| 4 | VCC |
| 3 | GND |
| 2 | V REF H |
| 1 | ZOOM COM |

DEW SENSER

POWER SW
DSC MODEL
PHOTO
CAMERA
OFF
VCR

SW9 REC
R11
R49 ZOOM

SW11 UP
SW12 DOWN    R12
SW13 MENU    R16
SW14 MANUAL FOCUS    R17

TOP OPERATION UNIT
SIDE L OPERATION UNIT
MECHANISM FPC UNIT
**VM-L153/PV-L353/PV-L353-K/PV-L453**

## 8.9. INTERCONNECTION SCHEMATIC DIAGRAM

**INTERCONNECTION SCHEMATIC DIAGRAM**

**MAIN C.B.A.**

**LENS UNIT**

FP9 (22 Pins) FP13

**CCD C.B.A.**

FP8 (155) (12 Pins) FP12

**BATTERY CATCHER C.B.A.**

(26 Pins) A,B,C
(37 Pins) D

FP2

DC JACK

A/V JACK

D

PC JACK

FP901 (344) (22 Pins) **EVF MAIN UNIT**

SD CARD SLOT

**MICROPHONE UNIT**

MIC (6 Pins) FP11

S301
36 Pins

TO
(FO

**LAMP SOCKET UNIT**

LAMP (2 Pins) ○ TP5001
○ TP5002

FP10 (2

**MECHANISM CHASSIS ASS'Y**

**AC HEAD UNIT**

(11 Pins) (28 Pins) FP1

**CAPSTAN UNIT**

(15 Pins)

**LOADING MOTOR UNIT**

(2 Pins)

**CYLINDER UNIT**

(18 Pins) (28Pins) FP6

**HEAD AMP C.B.A.**

FP3501 (12 Pins)

**MECHANISM FPC UNIT**

(14 Pins) FP7

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NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

**COMPARISON CHART
OF MODELS & MARKS**

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |
| Not Used | PT |

FP13

**SIDE L OPERATION  UNIT**

(16 Pins)

FP12

**TOP OPERATION  UNIT**

(6 Pins)

S301

36 Pins

TO TP BOARD
(FOR EVR ADJUSTMENT)

**LCD SHAFT UNIT**

**LCD C.B.A.**

**LCD PANEL UNIT**

FP10

(26 Pins)

FP9101

(21 Pins)

FP1201

FP9001

(24 Pins)

**PT**  FP9002

(24 Pins)

**INTERCONNECTION SCHEMATIC DIAGRAM**
**VM-L153/PV-L353/PV-L353-K/PV-L453**

# MAIN C.B.A. (CAMERA SECTION)

**COMPARISON CHART OF MODELS & MARKS**

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |

## IC301 (A,B,C)

| PIN NO. | CAMERA | PIN NO. | CAMERA | PIN NO. | CAMERA |
|---|---|---|---|---|---|
| 1 | 0 | 49 | 3.5 | 97 | --- |
| 2 | 3.5 | 50 | 0 | 98 | 0 |
| 3 | 0 | 51 | 3.5 | 99 | 1.9 |
| 4 | 3.5 | 52 | 0 | 100 | 0 |
| 5 | 3.5 | 53 | --- | 101 | 0 |
| 6 | 2.7 | 54 | --- | 102 | --- |
| 7 | 1.6 | 55 | --- | 103 | 3.5 |
| 8 | 0.9 | 56 | 0.2 | 104 | 0 |
| 9 | 3.3 | 57 | 0.1 | 105 | 0 |
| 10 | 0.2 | 58 | --- | 106 | --- |
| 11 | 0.1 | 59 | --- | 107 | --- |
| 12 | 0.2 | 60 | 0.1 | 108 | --- |
| 13 | 0.2 | 61 | 0 | 109 | 3.5 |
| 14 | 3.5 | 62 | 0 | 110 | 0 |
| 15 | 0 | 63 | 3.5 | 111 | 1.4 |
| 16 | 3.5 | 64 | 3.5 | 112 | 2.0 |
| 17 | 1.8 | 65 | 0.1 | 113 | 0.1 |
| 18 | 1.7 | 66 | 0.1 | 114 | 3.5 |
| 19 | 0 | 67 | 0.1 | 115 | 0 |
| 20 | 3.5 | 68 | 0 | 116 | 3.6 |
| 21 | 0 | 69 | 0 | 117 | 0 |
| 22 | 1.6 | 70 | --- | 118 | 1.4 |
| 23 | 0.1 | 71 | --- | 119 | 2.6 |
| 24 | 0.1 | 72 | 0 | 120 | 0.4 |
| 25 | 0.7 | 73 | 0 | 121 | 1.4 |
| 26 | 3.5 | 74 | 3.5 | 122 | 0.6 |
| 27 | 3.5 | 75 | --- | 123 | 2.6 |
| 28 | 3.4 | 76 | 1.9 | 124 | 1.4 |
| 29 | 3.4 | 77 | 1.8 | 125 | 3.6 |
| 30 | 0.2 | 78 | 0 | 126 | 0 |
| 31 | 0.2 | 79 | 4.1 | 127 | 3.5 |
| 32 | 3.5 | 80 | 0 | 128 | 0 |
| 33 | 0 | 81 | 0 | 129 | --- |
| 34 | 0 | 82 | 1.7 | 130 | --- |
| 35 | 1.8 | 83 | 0 | 131 | --- |
| 36 | 1.5 | 84 | 0 | 132 | --- |
| 37 | 0 | 85 | 0 | 133 | --- |
| 38 | 3.5 | 86 | 1.7 | 134 | --- |
| 39 | 1.6 | 87 | 0 | 135 | --- |
| 40 | 0.4 | 88 | 0.1 | 136 | 1.2 |
| 41 | 0.5 | 89 | 1.7 | 137 | 0.1 |
| 42 | 3.5 | 90 | --- | 138 | 0.9 |
| 43 | 0 | 91 | 3.2 | 139 | 1.0 |
| 44 | 0.4 | 92 | 3.5 | 140 | 1.2 |
| 45 | 0 | 93 | 3.5 | 141 | 1.2 |
| 46 | 3.5 | 94 | 1.8 | 142 | 1.4 |
| 47 | 1.7 | 95 | 0 | 143 | 0.7 |
| 48 | 1.4 | 96 | 0.1 | 144 | 0.1 |

## IC301 (D)

| PIN NO. | CAMERA | PIN NO. | CAMERA | PIN NO. | CAMERA |
|---|---|---|---|---|---|
| 1 | 3.5 | 49 | --- | 97 | 0 |
| 2 | 0 | 50 | 3.2 | 98 | 1.0 |
| 3 | 0 | 51 | 0 | 99 | 3.1 |
| 4 | 3.5 | 52 | 3.5 | 100 | 0 |
| 5 | 0 | 53 | 0 | 101 | 0.2 |
| 6 | --- | 54 | 0 | 102 | 0.3 |
| 7 | --- | 55 | 3.5 | 103 | 3.4 |
| 8 | --- | 56 | 0 | 104 | 3.4 |
| 9 | --- | 57 | 3.5 | 105 | 0 |
| 10 | 0 | 58 | --- | 106 | 0 |
| 11 | --- | 59 | --- | 107 | 3.4 |
| 12 | --- | 60 | --- | 108 | 1.7 |
| 13 | --- | 61 | --- | 109 | 3.4 |
| 14 | --- | 62 | --- | 110 | 1.3 |
| 15 | 2.5 | 63 | 0 | 111 | 3.3 |
| 16 | 0 | 64 | 2.5 | 112 | 1.9 |
| 17 | 1.7 | 65 | --- | 113 | 0 |
| 18 | 1.6 | 66 | --- | 114 | 3.5 |
| 19 | 1.6 | 67 | --- | 115 | 0.1 |
| 20 | 1.6 | 68 | --- | 116 | 0.4 |
| 21 | 1.4 | 69 | 1.7 | 117 | 0 |
| 22 | 1.3 | 70 | 0 | 118 | 0 |
| 23 | 1.1 | 71 | 0 | 119 | 0 |
| 24 | 1.4 | 72 | 1.2 | 120 | 3.5 |
| 25 | 1.7 | 73 | 1.0 | 121 | 0 |
| 26 | 1.5 | 74 | 1.9 | 122 | 0.3 |
| 27 | 0 | 75 | 3.5 | 123 | 3.4 |
| 28 | 3.5 | 76 | 0 | 124 | 0.8 |
| 29 | 1.6 | 77 | 3.1 | 125 | 1.6 |
| 30 | 1.6 | 78 | 2.8 | 126 | 2.8 |
| 31 | --- | 79 | 0 | 127 | 0.8 |
| 32 | --- | 80 | 3.5 | 128 | 0.9 |
| 33 | 0 | 81 | 1.9 | 129 | 0.8 |
| 34 | 0 | 82 | 1.0 | 130 | 1.0 |
| 35 | 0 | 83 | 0 | 131 | 0.7 |
| 36 | 2.5 | 84 | 1.7 | 132 | 0.7 |
| 37 | 3.5 | 85 | 3.5 | 133 | 0.9 |
| 38 | 0 | 86 | 0 | 134 | 0 |
| 39 | 0 | 87 | 0 | 135 | 2.5 |
| 40 | 0 | 88 | --- | 136 | 0.9 |
| 41 | 0 | 89 | 1.7 | 137 | --- |
| 42 | 0 | 90 | 1.7 | 138 | 1.7 |
| 43 | 0 | 91 | 0 | 139 | 0 |
| 44 | --- | 92 | 0 | 140 | 0 |
| 45 | 0 | 93 | 2.5 | 141 | 0 |
| 46 | --- | 94 | --- | 142 | 0 |
| 47 | --- | 95 | --- | 143 | 0 |
| 48 | --- | 96 | 2.5 | 144 | 0 |

## IC306

| PIN NO. | CAMERA |
|---|---|
| 1 | --- |
| 2 | 3.5 |
| 3 | 3.5 |
| 4 | 3.5 |
| 5 | 0.1 |
| 6 | 1.5 |
| 7 | 0 |
| 8 | 3.5 |

## IC308 (A,B,C)

| PIN NO. | CAMERA | PIN NO. | CAMERA | PIN NO. | CAMERA |
|---|---|---|---|---|---|
| 1 | 0 | 35 | --- | 69 | 3.4 |
| 2 | 3.5 | 36 | 1.8 | 70 | 3.4 |
| 3 | 0 | 37 | 0 | 71 | 3.5 |
| 4 | 0.3 | 38 | --- | 72 | 0 |
| 5 | 3.5 | 39 | 0.2 | 73 | 3.5 |
| 6 | 3.5 | 40 | 0 | 74 | 0 |
| 7 | 0 | 41 | --- | 75 | 3.4 |
| 8 | 2.5 | 42 | --- | 76 | 1.7 |
| 9 | --- | 43 | --- | 77 | 0.6 |
| 10 | 2.7 | 44 | --- | 78 | 0.1 |
| 11 | 1.6 | 45 | 3.5 | 79 | 0.1 |
| 12 | 0.8 | 46 | 3.5 | 80 | 0.1 |
| 13 | 3.5 | 47 | 3.5 | 81 | 0.1 |
| 14 | 0.1 | 48 | 3.5 | 82 | 0.1 |
| 15 | 0 | 49 | 0 | 83 | 0.1 |
| 16 | --- | 50 | 0 | 84 | 0.1 |
| 17 | --- | 51 | 0 | 85 | 0.1 |
| 18 | 0 | 52 | 0 | 86 | --- |
| 19 | 3.1 | 53 | 0 | 87 | 3.5 |
| 20 | 2.1 | 54 | --- | 88 | 0 |
| 21 | 1.3 | 55 | 3.5 | 89 | 0 |
| 22 | 3.5 | 56 | 0 | 90 | --- |
| 23 | 2.6 | 57 | 0 | 91 | --- |
| 24 | 0.2 | 58 | 3.5 | 92 | --- |
| 25 | 1.2 | 59 | 3.5 | 93 | 3.0 |
| 26 | 1.0 | 60 | 0.8 | 94 | 1.7 |
| 27 | 0.1 | 61 | 0 | 95 | 0 |
| 28 | 0.1 | 62 | 0 | 96 | 2.7 |
| 29 | 0 | 63 | 0 | 97 | 0 |
| 30 | 0 | 64 | --- | 98 | 0.3 |
| 31 | 3.4 | 65 | 0 | 99 | 3.5 |
| 32 | 0 | 66 | 0 | 100 | 0.1 |
| 33 | --- | 67 | 0 |  |  |
| 34 | 3.5 | 68 | 0 |  |  |

## IC309

| PIN NO. | CAMERA |
|---|---|
| 1 | 13.5 |
| 2 | 2.2 |
| 3 | 2.2 |
| 4 | 14.8 |
| 5 | 1.4 |
| 6 | 1.4 |
| 7 | 0.1 |
| 8 | 3.4 |
| 9 | 0.1 |
| 10 | 0.1 |
| 11 | 0 |
| 12 | 0.6 |
| 13 | 0.6 |
| 14 | 2.5 |

## IC501 (D)

| PIN NO. | CAMERA | PIN NO. | CAMERA | PIN NO. | CAMERA |
|---|---|---|---|---|---|
| 1 | --- | 49 | 3.6 | 97 | --- |
| 2 | 0 | 50 | 1.8 | 98 | 0 |
| 3 | 0.7 | 51 | 1.8 | 99 | 1.2 |
| 4 | 0.3 | 52 | 1.7 | 100 | --- |
| 5 | 0.2 | 53 | 3.6 | 101 | 3.7 |
| 6 | 0 | 54 | 0 | 102 | 0 |
| 7 | 0.4 | 55 | 3.6 | 103 | 0 |
| 8 | 0.4 | 56 | 0 | 104 | 2.7 |
| 9 | 0.4 | 57 | 0 | 105 | 1.9 |
| 10 | --- | 58 | 0 | 106 | 3.6 |
| 11 | --- | 59 | 0 | 107 | 0 |
| 12 | 0.4 | 60 | 3.4 | 108 | 3.6 |
| 13 | 0.4 | 61 | 0 | 109 | --- |
| 14 | 0.4 | 62 | 0 | 110 | 0 |
| 15 | 3.6 | 63 | 0.4 | 111 | 2.8 |
| 16 | 0.4 | 64 | 0.7 | 112 | 0 |
| 17 | 0.4 | 65 | 1.8 | 113 | 0.9 |
| 18 | 0.4 | 66 | --- | 114 | --- |
| 19 | 0.4 | 67 | 3.6 | 115 | --- |
| 20 | --- | 68 | --- | 116 | --- |
| 21 | 0 | 69 | --- | 117 | 3.6 |
| 22 | 0 | 70 | --- | 118 | 1.0 |
| 23 | 0 | 71 | 3.6 | 119 | 0 |
| 24 | 0 | 72 | 0 | 120 | 0.2 |
| 25 | 0 | 73 | 3.6 | 121 | 3.6 |
| 26 | 0 | 74 | --- | 122 | --- |
| 27 | 0 | 75 | --- | 123 | --- |
| 28 | --- | 76 | --- | 124 | 1.0 |
| 29 | --- | 77 | 3.5 | 125 | 1.0 |
| 30 | --- | 78 | 1.7 | 126 | 1.0 |
| 31 | 3.6 | 79 | 0 | 127 | 1.0 |
| 32 | 3.6 | 80 | 0.2 | 128 | --- |
| 33 | --- | 81 | 0.8 | 129 | --- |
| 34 | 3.6 | 82 | 1.4 | 130 | 0 |
| 35 | 3.6 | 83 | --- | 131 | 1.0 |
| 36 | 3.6 | 84 | 4.3 | 132 | 1.1 |
| 37 | 3.6 | 85 | 3.6 | 133 | --- |
| 38 | 3.6 | 86 | 1.5 | 134 | --- |
| 39 | --- | 87 | --- | 135 | 0 |
| 40 | 0 | 88 | --- | 136 | 0 |
| 41 | 0 | 89 | --- | 137 | 0.9 |
| 42 | 0 | 90 | --- | 138 | 0 |
| 43 | 0 | 91 | --- | 139 | 3.6 |
| 44 | --- | 92 | --- | 140 | 3.6 |
| 45 | 0 | 93 | --- | 141 | 0 |
| 46 | 3.6 | 94 | --- | 142 | --- |
| 47 | 3.6 | 95 | --- | 143 | --- |
| 48 | 3.6 | 96 | --- | 144 | --- |

## IC505 (D)

| PIN NO. | CAMERA |
|---|---|
| 1 | --- |
| 2 | 0 |
| 3 | --- |
| 4 | 3.2 |
| 5 | 2.5 |

## IC602 (D)

| PIN NO. | CAMERA | PIN NO. | CAMERA |
|---|---|---|---|
| 1 | 0 | 33 | 3.5 |
| 2 | 1.7 | 34 | 0 |
| 3 | 1.7 | 35 | 0 |
| 4 | 0.1 | 36 | 1.4 |
| 5 | 1.5 | 37 | 0.3 |
| 6 | 1.4 | 38 | 3.5 |
| 7 | --- | 39 | 3.5 |
| 8 | 3.4 | 40 | 0 |
| 9 | 0.1 | 41 | 3.5 |
| 10 | 0.7 | 42 | 0.8 |
| 11 | 0.1 | 43 | 1.1 |
| 12 | 0.9 | 44 | 0 |
| 13 | 0.2 | 45 | 0.3 |
| 14 | 0.4 | 46 | 0.3 |
| 15 | --- | 47 | 1.4 |
| 16 | --- | 48 | --- |
| 17 | 0.4 | 49 | 1.4 |
| 18 | 0.2 | 50 | 1.7 |
| 19 | --- | 51 | 3.5 |
| 20 | 3.2 | 52 | 0 |
| 21 | --- | 53 | 0 |
| 22 | 3.5 | 54 | 3.5 |
| 23 | 2.0 | 55 | 0 |
| 24 | 0 | 56 | 3.5 |
| 25 | 3.5 | 57 | --- |
| 26 | 3.4 | 58 | 1.7 |
| 27 | 0.2 | 59 | 1.7 |
| 28 | 0.1 | 60 | --- |
| 29 | 3.3 | 61 | 3.5 |
| 30 | 0.2 | 62 | 3.5 |
| 31 | 3.4 | 63 | 3.5 |
| 32 | 3.5 | 64 | 3.5 |

## IC603

| PIN NO. | CAMERA |
|---|---|
| 1 | -7.4 |
| 2 | -7.8 |
| 3 | -0.2 |
| 4 | 0 |
| 5 | -0.4 |
| 6 | 3.5 |
| 7 | 0.1 |
| 8 | 3.5 |
| 9 | 0.1 |
| 10 | 3.4 |
| 11 | --- |
| 12 | 3.4 |
| 13 | 0.3 |
| 14 | 3.3 |
| 15 | 0 |
| 16 | 14.7 |
| 17 | -7.5 |
| 18 | -7.5 |
| 19 | 0 |
| 20 | 14.7 |

## IC605

| PIN NO. | CAMERA |
|---|---|
| 1 | 0 |
| 2 | 1.9 |
| 3 | --- |
| 4 | --- |
| 5 | 2.0 |
| 6 | 4.4 |
| 7 | 1.3 |

**VOLTAGE CHART**
**VM-L153/PV-L353/PV-L353-K/PV-L453**

**COMPARISON CHART OF MODELS & MARKS**

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |

## MAIN C.B.A. (POWER SUPPLY/VIDEO/AUDIO SECTION)

**Column 1**

| MODE PIN NO. | STOP |
|---|---|
| 8 | 2.1 |
| 9 | 1.8 |
| 10 | 3.4 |
| 11 | 0.3 |
| 12 | 0 |
| 13 | --- |
| 14 | --- |
| 15 | --- |
| 16 | --- |
| 17 | 3.4 |
| 18 | 1.7 |
| 19 | 3.4 |
| 20 | 1.4 |
| 21 | 0.2 |
| 22 | 0.3 |
| 23 | --- |
| 24 | 0.7 |
| 25 | 0.1 |
| 26 | 0 |
| 27 | 2.3 |
| 28 | 2.3 |
| 29 | 4.4 |
| 30 | --- |
| 31 | 3.1 |
| 32 | --- |
| 33 | 1.8 |
| 34 | 1.8 |
| 35 | 0 |
| 36 | 4.4 |
| 37 | 3.1 |
| 38 | 1.9 |
| 39 | 1.9 |
| 40 | 4.4 |
| 41 | 0 |
| 42 | 2.2 |
| 43 | 2.3 |
| 44 | 3.0 |
| 45 | 0.1 |
| 46 | 2.3 |
| 47 | 3.4 |
| 48 | 1.4 |
| IC701 | |
| 1 | 0 |
| 2 | 0.2 |
| 3 | --- |
| 4 | 1.2 |
| 5 | 1.2 |
| 6 | 0.2 |
| 7 | 0 |
| 8 | 0 |
| 9 | 0 |
| 10 | 0.3 |
| 11 | 0.3 |
| 12 | 0 |
| 13 | 0.3 |

**Column 2**

| MODE PIN NO. | STOP |
|---|---|
| 14 | 7.1 |
| IC702 | |
| 1 | 0 |
| 2 | 0.3 |
| 3 | --- |
| 4 | 1.2 |
| 5 | 1.2 |
| 6 | 0 |
| 7 | 0 |
| 8 | 0 |
| 9 | 0 |
| 10 | 0.3 |
| 11 | 3.1 |
| 12 | 0 |
| 13 | 0.1 |
| 14 | 6.3 |
| Q301 | |
| E | 2.5 |
| C | 4.5 |
| B | 3.1 |
| Q302 | |
| E | 1.6 |
| C | 3.1 |
| B | 2.3 |
| Q303 | |
| E | 1.8 |
| C | 0 |
| B | 1.2 |
| Q305 | |
| E | 2.9 |
| C | 4.5 |
| B | 3.6 |
| Q306 | |
| E | 2.2 |
| C | 0 |
| B | 2.9 |
| Q307 | |
| E | 2.6 |
| C | 0 |
| B | 2.9 |
| Q308 (D) | |
| E | 2.6 |
| C | 3.5 |
| B | 3.2 |
| Q310 | |
| E | 2.8 |
| C | 4.5 |
| B | 2.4 |
| Q311 | |
| E | 1.8 |
| C | 4.6 |
| Q311 | |
| E | 1.8 |
| C | 4.6 |

**Column 3**

| MODE PIN NO. | STOP |
|---|---|
| B | 2.4 |
| Q610 | |
| E | 3.5 |
| C | 3.5 |
| B | 0.3 |
| Q611 | |
| E | 3.5 |
| C | 3.5 |
| B | 3.5 |
| Q617 | |
| E | 1.1 |
| C | 4.5 |
| B | 1.8 |
| Q703 | |
| E | 0 |
| C | 3.5 |
| B | 0 |
| TP601 | 1.5 |
| TP602 | --- |
| TP603 | --- |
| TP604 | --- |
| TP605 | 1.4 |

**Column 4**

| MODE PIN NO. | STOP |
|---|---|
| IC1001 | |
| 1 | 5.5 |
| 2 | 7.1 |
| 3 | 6.6 |
| 4 | 1.5 |
| 5 | 1.6 |
| 6 | 1.6 |
| 7 | 1.6 |
| 8 | 1.6 |
| 9 | 1.5 |
| 10 | 1.6 |
| 11 | 1.6 |
| 12 | 0.9 |
| 13 | 7.1 |
| 14 | 7.1 |
| 15 | 0.5 |
| 16 | 1.4 |
| 17 | 0 |
| 18 | 0 |
| 19 | 0.2 |
| 20 | 7.0 |
| 21 | 7.1 |
| 22 | 7.1 |
| 23 | 4.2 |
| 24 | --- |
| 25 | 0.7 |
| 26 | 1.6 |
| 27 | 0.1 |
| 28 | 0.2 |
| 29 | 0.1 |
| 30 | 0.1 |
| 31 | 1.6 |
| 32 | 1.5 |
| 33 | 6.3 |
| 34 | 7.0 |
| 35 | 5.4 |
| 36 | 6.5 |
| 37 | 7.0 |
| 38 | 6.5 |
| 39 | 7.2 |
| 40 | 6.1 |
| 41 | 0.3 |
| 42 | 0 |
| 43 | 7.4 |
| 44 | 7.0 |
| 45 | 7.4 |
| 46 | 7.4 |
| 47 | 7.1 |
| 48 | 6.4 |
| IC3001 | |
| 1 | 2.2 |
| 2 | --- |
| 3 | 4.1 |
| 4 | 0.1 |
| 5 | 2.0 |

**Column 5**

| MODE PIN NO. | STOP |
|---|---|
| 6 | 4.5 |
| 7 | 2.2 |
| 8 | 0 |
| 9 | 2.0 |
| 10 | 2.1 |
| 11 | 0.4 |
| 12 | 0 |
| 13 | 1.5 |
| 14 | 2.1 |
| 15 | 3.9 |
| 16 | 0.4 |
| 17 | 2.1 |
| 18 | 2.1 |
| 19 | 2.5 |
| 20 | 2.1 |
| 21 | 2.0 |
| 22 | 3.0 |
| 23 | 4.0 |
| 24 | 3.2 |
| 25 | 2.9 |
| 26 | 0 |
| 27 | 3.2 |
| 28 | 4.5 |
| 29 | 2.7 |
| 30 | 0 |
| 31 | 2.4 |
| 32 | 3.0 |
| 33 | 0 |
| 34 | 3.4 |
| 35 | -4.5 |
| 36 | 2.5 |
| 37 | 2.4 |
| 38 | 2.3 |
| 39 | 2.8 |
| 40 | 1.3 |
| 41 | 1.4 |
| 42 | 2.2 |
| 43 | 2.2 |
| 44 | 3.1 |
| 45 | 0.2 |
| 46 | --- |
| 47 | --- |
| 48 | --- |
| 49 | 2.1 |
| 50 | 2.1 |
| 51 | 2.1 |
| 52 | 4.5 |
| 53 | 2.3 |
| 54 | 0 |
| 55 | 2.8 |
| 56 | 3.6 |
| 57 | -4.5 |
| 58 | 3.0 |
| 59 | 0 |
| 60 | 4.4 |

**Column 6**

| MODE PIN NO. | STOP |
|---|---|
| 61 | 0.5 |
| 62 | 2.2 |
| 63 | 4.5 |
| 64 | 4.5 |
| 65 | 0.2 |
| 66 | 0.7 |
| 67 | 0 |
| 68 | 3.6 |
| 69 | 2.1 |
| 70 | 4.5 |
| 71 | 4.6 |
| 72 | 1.6 |
| 73 | 1.8 |
| 74 | 0 |
| 75 | 0.2 |
| 76 | 2.1 |
| 77 | 0.2 |
| 78 | 0.1 |
| 79 | 2.4 |
| 80 | 2.1 |
| IC3002 | |
| 1 | 2.2 |
| 2 | 0 |
| 3 | 4.5 |
| 4 | 3.0 |
| 5 | 0 |
| 6 | 2.6 |
| 7 | 1.7 |
| 8 | 2.8 |
| 9 | 4.5 |
| 10 | 0 |
| 11 | 2.5 |
| 12 | 2.6 |
| 13 | 2.9 |
| 14 | 0 |
| 15 | 2.5 |
| 16 | 4.5 |
| 17 | 0 |
| 18 | 2.4 |
| 19 | 2.6 |
| 20 | 2.3 |
| IC4001 | |
| 1 | 2.1 |
| 2 | 0 |
| 3 | 2.1 |
| 4 | 0.7 |
| 5 | 2.1 |
| 6 | 2.1 |
| 7 | 2.9 |
| 8 | 0.1 |
| 9 | --- |
| 10 | 0 |
| 11 | 0 |
| 12 | --- |
| 13 | 2.6 |

**Column 7**

| MODE PIN NO. | STOP |
|---|---|
| 14 | 4.5 |
| 15 | 0.8 |
| 16 | 4.6 |
| 17 | 2.1 |
| 18 | 2.1 |
| 19 | 0.2 |
| 20 | 0.2 |
| 21 | 3.5 |
| 22 | 0 |
| 23 | 0.2 |
| 24 | 0.1 |
| 25 | 2.1 |
| 26 | 1.8 |
| 27 | 0.7 |
| 28 | 0.9 |
| 29 | 2.0 |
| 30 | 0.2 |
| 31 | 0.7 |
| 32 | 2.0 |
| 33 | --- |
| 34 | 2.1 |
| 35 | 2.1 |
| 36 | 2.1 |
| 37 | 2.1 |
| 38 | 1.9 |
| 39 | 2.1 |
| 40 | 2.1 |
| 41 | --- |
| 42 | 4.6 |
| 43 | 4.0 |
| 44 | 0 |
| 45 | 0 |
| 46 | 2.1 |
| 47 | 1.6 |
| 48 | 4.6 |
| Q1001 | |
| E | 7.1 |
| C | 7.1 |
| B | 0.1 |
| Q1002 | |
| E | 0.1 |
| C | 0 |
| B | 0.1 |
| Q1003 | |
| E | 2.0 |
| C | 0 |
| B | 1.4 |
| Q1005 | |
| E | 7.1 |
| C | 4.6 |
| B | 6.6 |
| Q1006 | |
| E | 7.1 |
| C | 3.6 |

**Column 8**

| MODE PIN NO. | STOP |
|---|---|
| 14 | 4.5 |
| 15 | 0.8 |
| 16 | 4.6 |
| 17 | 2.1 |
| 18 | 2.1 |
| 19 | 0.2 |
| 20 | 0.2 |
| 21 | 3.5 |
| 22 | 0 |
| 23 | 0.2 |
| 24 | 0.1 |
| 25 | 2.1 |
| 26 | 1.8 |
| 27 | 0.7 |
| 28 | 0.9 |
| 29 | 2.0 |
| 30 | 0.2 |
| 31 | 0.7 |
| 32 | 2.0 |
| 33 | --- |
| 34 | 2.1 |
| 35 | 2.1 |
| 36 | 2.1 |
| 37 | 2.1 |
| 38 | 1.9 |
| 39 | 2.1 |
| 40 | 2.1 |
| 41 | --- |
| 42 | 4.6 |
| 43 | 4.0 |
| 44 | 0 |
| 45 | 0 |
| 46 | 2.1 |
| 47 | 1.6 |
| 48 | 4.6 |
| B | 6.8 |
| Q1007 | |
| E | 7.1 |
| C | 3.6 |
| B | 6.8 |
| Q1008 | |
| E | 7.1 |
| C | 4.7 |
| B | 6.6 |
| Q1009 | |
| E | 7.1 |
| C | 6.4 |
| B | 6.8 |
| Q1010 | |
| E | 7.1 |
| C | 0 |
| B | 7.1 |
| Q1011 (D) | |
| E1 | 1.9 |
| C1 | 6.7 |
| B1 | 1.3 |
| E2 | 1.5 |
| C2 | 4.8 |
| B2 | 2.5 |
| Q1013 (D) | |
| E | 7.1 |
| C | 5.0 |
| B | 6.5 |
| Q1015 | |
| E | 7.1 |
| C | 7.1 |
| B | 7.8 |
| Q1018 | |
| E | 0 |
| C | -5.4 |
| B | -0.6 |
| Q1019 | |
| E | -8.1 |
| C | -15.2 |
| B | -8.1 |
| Q1024 | |
| E | 6.8 |
| C | 7.1 |
| B | 7.1 |
| Q1101 | |
| E | 7.1 |
| C | 1.9 |
| B | 7.1 |
| Q1102 | |
| E | 0 |
| C | 7.1 |
| B | 0 |
| Q1103 | |
| E | 7.1 |
| C | 0 |

**Column 9**

| MODE PIN NO. | STOP |
|---|---|
| B | 7.1 |
| Q1105 | |
| E | 7.1 |
| C | 0 |
| B | 7.1 |
| Q3003 | |
| E | 4.3 |
| C | 0 |
| B | 3.8 |
| Q3004 | |
| E | 3.3 |
| C | 3.4 |
| B | 4.1 |
| Q3005 | |
| E | 2.8 |
| C | 4.5 |
| B | 3.4 |
| Q3027 | |
| E | 1.8 |
| C | 4.9 |
| B | 2.4 |
| Q4001 | |
| E1 | 3.5 |
| C1 | 4.1 |
| B1 | 4.5 |
| E2 | 4.5 |
| C2 | 3.9 |
| B2 | 3.6 |
| Q4002 | |
| E | 0 |
| C | 0.1 |
| B | 0.8 |
| Q4003 | |
| E | 1.2 |
| C | 0 |
| B | 0.8 |
| Q4005 | |
| E | 0 |
| C | 0.4 |
| B | 0.2 |
| Q4006 | |
| E | 0 |
| C | 0 |
| B | 0 |
| Q4007 | |
| E | 4.6 |
| C | 0 |
| B | 4.5 |
| Q4008 | |
| E | 0 |
| C | 4.5 |
| B | 0.1 |
| Q4009 | |
| E | 0 |
| C | 1.7 |

**Column 10**

| MODE PIN NO. | STOP |
|---|---|
| B | 0.2 |
| TP1001 | 4.6 |
| TP1002 | 4.6 |
| TP1003 | 15.0 |
| TP1005 | -7.9 |
| TP1006 | 3.6 |
| TP1007 | 4.7 |
| TP1008 | 15.0 |
| TP3001 | 1.0 |
| TP3002 | 2.7 |
| TP3003 | 0.2 |
| TP3004 | 3.0 |
| TP3005 | 3.2 |
| TP3006 | 2.3 |
| TP4001 | 1.3 |
| TP4002 | 0 |
| TP4003 | 0 |

**VOLTAGE CHART**
**VM-L153/PV-L353/PV-L353-K/PV-L453**

# MAIN C.B.A. (SYSTEM CONTROL/SERVO SECTION)

| MODE PIN NO. | REC | PLAY |
|---|---|---|
| IC2001 | | |
| 1 | 2.1 | 2.1 |
| 2 | 0.6 | 0.6 |
| 3 | 0.6 | 0.7 |
| 4 | 3.0 | 3.0 |
| 5 | 0 | 0 |
| 6 | 0.1 | 0.1 |
| 7 | 0.1 | 0.1 |
| 8 | 2.3 | 2.3 |
| 9 | 2.3 | 2.3 |
| 10 | 2.3 | 2.3 |
| 11 | 2.3 | 2.3 |
| 12 | 2.3 | 2.3 |
| 13 | 2.3 | 2.3 |
| 14 | 6.9 | 7.0 |
| 15 | 1.8 | 1.8 |
| 16 | 1.9 | 1.8 |
| 17 | 1.8 | 1.8 |
| 18 | 0.5 | 0 |
| 19 | 0.5 | 0 |
| 20 | 0.4 | 0.6 |
| 21 | 7.2 | 6.7 |
| 22 | 6.9 | 6.7 |
| 23 | 6.5 | 6.7 |
| 24 | 0.5 | 0.5 |
| 25 | 0.5 | 0.5 |
| 26 | 0.5 | 0.5 |
| 27 | 2.6 | 0.1 |
| 28 | 2.6 | 2.5 |
| 29 | 1.0 | 0.9 |
| 30 | 1.0 | 1.0 |
| 31 | 1.0 | 0.9 |
| 32 | 1.0 | 0.9 |
| 33 | 2.0 | 2.0 |
| 34 | 2.2 | 0 |
| 35 | 2.2 | 2.2 |
| 36 | 1.7 | 1.7 |
| 37 | 1.7 | 1.7 |
| 38 | 1.3 | 1.3 |
| 39 | 1.3 | 1.3 |
| 40 | 0.1 | 0.1 |
| 41 | 0.1 | 0.1 |
| 42 | 0 | 0 |
| 43 | 0.1 | 0 |
| 44 | 2.1 | 2.1 |
| 45 | 0.7 | 0.7 |
| 46 | 0.6 | 0.6 |
| 47 | 0.3 | 0.3 |
| 48 | 2.1 | 2.1 |
| 49 | 6.1 | 6.3 |
| 50 | 2.0 | 2.0 |
| 51 | 0 | 0 |
| 52 | 4.6 | 4.6 |
| 53 | 2.2 | 2.2 |
| 54 | --- | --- |

| MODE PIN NO. | REC | PLAY |
|---|---|---|
| 55 | 0.8 | 0.8 |
| 56 | 0 | 0 |
| 57 | 2.3 | 2.3 |
| 58 | 2.3 | 2.3 |
| 59 | 2.3 | 2.3 |
| 60 | 2.3 | 2.3 |
| 61 | 2.3 | 2.3 |
| 62 | --- | --- |
| 63 | --- | --- |
| 64 | --- | --- |
| IC2002 | | |
| 1 | 1.0 | 1.0 |
| 2 | 2.6 | 3.7 |
| 3 | 1.0 | 1.0 |
| 4 | 2.6 | 3.7 |
| 5 | 1.0 | 1.0 |
| 6 | 2.7 | 3.7 |
| 7 | 2.0 | 2.0 |
| 8 | 1.0 | 1.0 |
| 9 | 0.5 | 0.5 |
| 10 | 1.0 | 1.0 |
| 11 | 0.5 | 0.5 |
| 12 | 1.0 | 1.0 |
| 13 | 0.5 | 0.5 |
| 14 | 0.1 | 0.1 |
| IC2003 | | |
| 1 | 1.8 | 1.9 |
| 2 | 6.5 | 6.5 |
| 3 | 1.8 | 1.9 |
| 4 | 6.5 | 6.5 |
| 5 | 0.1 | 1.9 |
| 6 | 6.5 | 6.5 |
| 7 | 6.9 | 6.9 |
| 8 | 1.8 | 1.9 |
| 9 | 0.5 | 0.4 |
| 10 | 1.8 | 1.9 |
| 11 | 0.5 | 0.5 |
| 12 | 1.8 | 1.9 |
| 13 | 0.5 | 0.5 |
| 14 | 0.1 | 0.1 |
| IC6001 | | |
| 1 | 4.6 | 4.6 |
| 2 | 0 | 4.5 |
| 3 | 4.6 | 4.6 |
| 4 | --- | --- |
| 5 | 4.5 | 4.5 |
| 6 | 4.5 | 4.5 |
| 7 | 0.1 | 0.1 |
| 8 | 0.1 | 0.1 |
| 9 | 4.6 | 4.6 |
| 10 | 4.5 | 4.5 |
| 11 | 3.5 | 3.5 |
| 12 | 0.1 | 0.1 |
| 13 | 0.1 | 0.1 |
| 14 | 4.5 | 4.5 |

| MODE PIN NO. | REC | PLAY |
|---|---|---|
| 15 | 4.6 | 4.6 |
| 16 | 4.5 | 4.5 |
| 17 | 4.5 | 0 |
| 18 | --- | --- |
| 19 | 0.1 | 0.1 |
| 20 | 4.5 | 4.5 |
| 21 | 0.1 | 0.1 |
| 22 | 0 | 0 |
| 23 | 2.3 | 2.3 |
| 24 | 0.1 | 0.1 |
| 25 | 4.6 | 4.6 |
| 26 | 4.5 | 0 |
| 27 | 0.2 | 0.1 |
| 28 | 4.5 | 0 |
| 29 | 4.5 | 0 |
| 30 | 0.2 | 0.3 |
| 31 | --- | --- |
| 32 | 2.5 | 2.5 |
| 33 | 2.0 | 2.0 |
| 34 | 2.1 | 2.1 |
| 35 | --- | --- |
| 36 | 4.6 | 4.6 |
| 37 | --- | --- |
| 38 | 1.4 | 0 |
| 39 | 0 | 0 |
| 40 | 0.6 | 0.7 |
| 41 | --- | --- |
| 42 | 4.6 | 4.6 |
| 43 | 4.5 | 4.6 |
| 44 | 4.5 | 4.5 |
| 45 | 0 | 0 |
| 46 | --- | --- |
| 47 | 4.6 | 4.6 |
| 48 | 0 | 0 |
| 49 | --- | --- |
| 50 | 2.4 | 2.3 |
| 51 | 4.6 | 4.6 |
| 52 | 2.3 | 2.2 |
| 53 | 2.3 | 2.3 |
| 54 | 4.5 | 4.5 |
| 55 | 0 | 0 |
| 56 | 0 | 0.1 |
| 57 | 0 | 0 |
| 58 | 0.5 | 0.5 |
| 59 | 0 | 0 |
| 60 | 0.3 | 0.3 |
| 61 | 0 | 0 |
| 62 | --- | --- |
| 63 | --- | --- |
| 64 | 0 | 0 |
| 65 | 2.2 | 2.2 |
| 66 | 0.8 | 0.8 |
| 67 | 2.3 | 2.3 |
| 68 | 2.3 | 2.3 |
| 69 | 2.3 | 2.3 |

| MODE PIN NO. | REC | PLAY |
|---|---|---|
| 70 | 2.3 | 2.3 |
| 71 | 0 | 0 |
| 72 | 2.2 | 2.2 |
| 73 | 4.6 | 4.6 |
| 74 | 2.7 | 2.3 |
| 75 | 2.0 | 2.3 |
| 76 | 2.3 | 2.2 |
| 77 | 4.6 | 4.6 |
| 78 | 0 | 0 |
| 79 | 2.5 | 2.5 |
| 80 | --- | --- |
| 81 | 4.6 | 4.6 |
| 82 | 4.6 | 4.6 |
| 83 | | |
| 84 | 4.6 | 4.6 |
| 85 | 4.1 | 4.1 |
| 86 | 4.4 | 0.1 |
| 87 | --- | --- |
| 88 | 0.1 | 0.1 |
| 89 | 2.2 | 0.1 |
| 90 | 4.2 | 0.1 |
| 91 | 0.3 | 0.3 |
| 92 | 4.6 | 4.6 |
| 93 | --- | --- |
| 94 | 4.6 | 2.0 |
| 95 | 4.6 | 4.6 |
| 96 | 4.6 | 4.6 |
| 97 | 4.6 | 4.6 |
| 98 | 2.3 | 2.3 |
| 99 | --- | --- |
| 100 | 0.1 | 0.1 |
| IC6002 | | |
| 1 | 4.6 | 4.6 |
| 2 | 4.6 | 4.6 |
| 3 | --- | --- |
| 4 | 0 | 0 |
| IC6005 | | |
| 1 | 0.8 | 0.8 |
| 2 | 0.9 | 0.9 |
| 3 | 1.0 | 0.8 |
| 4 | 0 | 0 |
| 5 | 0.2 | 0.2 |
| 6 | 4.5 | 4.5 |
| 7 | 4.5 | 4.5 |
| 8 | 4.3 | 4.3 |
| IC6006 | | |
| 1 | 0 | 0 |
| 2 | 7.0 | 7.0 |
| 3 | 4.6 | 4.6 |
| IC6007 | | |
| 1 | 2.1 | 2.0 |
| 2 | 7.0 | 7.0 |
| 3 | 7.0 | 7.0 |
| 4 | 0.1 | 0 |
| 5 | 0.1 | 0.1 |

| MODE PIN NO. | REC | PLAY |
|---|---|---|
| 6 | 0.1 | 4.6 |
| 7 | 1.8 | 0 |
| 8 | 0 | 0 |
| IC6203 | | |
| 1 | 1.2 | 1.2 |
| 2 | 0 | 0 |
| 3 | 0 | 0 |
| 4 | 4.2 | 4.4 |
| Q6004 | | |
| E | 4.5 | 4.5 |
| C | 4.5 | 0 |
| B | 3.9 | 4.6 |
| Q6008 | | |
| E | 0 | 0 |
| C | 0 | 4.5 |
| B | 4.5 | 0 |
| Q6010 | | |
| E | 0 | 0 |
| C | 0 | 0.1 |
| B | 0 | 0 |
| Q6012 | | |
| E | 0 | 0 |
| C | 4.5 | 0 |
| B | --- | --- |
| Q6013 | | |
| E | 0.4 | 0.4 |
| C | 7.0 | 7.0 |
| B | 0 | 0 |
| Q6021 | | |
| E | 7.0 | 7.0 |
| C | 7.0 | 0 |
| B | 0 | 6.3 |
| TP5001 | 0 | 0 |
| TP5002 | 0 | 0 |
| TP5003 | 1.8 | 0 |
| TP5004 | 2.1 | 2.0 |
| TP6001 | 0.8 | 0 |
| TP6003 | 0.1 | 0.1 |
| TP6006 | 4.5 | 0 |
| TP6007 | --- | --- |
| TP6010 | 4.6 | 4.6 |
| TP6011 | 4.5 | --- |
| TP6012 | 4.6 | 4.6 |
| TP6020 | 4.1 | 4.1 |
| TP6021 | 3.1 | 3.1 |
| TP6022 | 3.1 | 3.1 |
| TP6023 | 0 | 0 |
| TP6205 | 2.1 | 2.3 |
| TP6206 | 2.0 | 2.3 |
| TP6208 | 0.8 | 0.8 |
| TP6210 | 2.2 | 2.2 |
| TP6212 | 0.9 | 1.8 |
| TP6215 | 0 | 0 |

| MODE PIN NO. | REC | PLAY |
|---|---|---|
| TP6216 | 0.2 | 4.6 |
| TP6217 | 2.2 | 2.0 |
| TP6220 | 1.0 | 0.9 |

**VOLTAGE CHART**
**VM-L153/PV-L353/PV-L353-K/PV-L453**

**COMPARISON CHART OF MODELS & MARKS**

| MODEL | MARK |
|---|---|
| VM-L153 | A |
| PV-L353 | B |
| PV-L353-K | C |
| PV-L453 | D |

## LCD C.B.A

| MODE / PIN NO. | CAMERA |
|---|---|
| IC9001 | |
| 1 | 1.8 |
| 2 | 1.8 |
| 3 | 1.8 |
| 4 | --- |
| 5 | --- |
| 6 | --- |
| 7 | --- |
| 8 | 1.5 |
| 9 | 3.8 |
| 10 | 2.6 |
| 11 | 2.6 |
| 12 | 2.6 |
| 13 | 2.6 |
| 14 | 2.6 |
| 15 | 2.6 |
| 16 | 2.6 |
| 17 | 0.1 |
| 18 | 7.5 |
| 19 | 0.1 |
| 20 | 0.1 |
| 21 | 0.5 |
| 22 | 1.7 |
| 23 | 1.7 |
| 24 | 1.7 |
| 25 | 3.5 |
| 26 | 1.9 |
| 27 | 1.7 |
| 28 | 0.1 |
| 29 | 0.1 |
| 30 | 0.1 |
| 31 | 0.6 |
| 32 | 0.3 |
| 33 | 1.8 |
| 34 | |
| 35 | --- |
| 36 | --- |
| 37 | 0 |
| 38 | 3.4 |
| 39 | 0.1 |
| 40 | 0 |
| 41 | 3.5 |
| 42 | 0.2 |
| 43 | 3.4 |
| 44 | 3.5 |
| 45 | 0.1 |
| 46 | 3.4 |
| 47 | 2.1 |
| 48 | 2.1 |
| IC9002 | |
| 1 | 6.6 |
| 2 | -15.6 |
| 3 | 6.6 |
| 4 | 6.6 |
| 5 | 13.1 |

| MODE / PIN NO. | CAMERA |
|---|---|
| Q1203 | |
| E | 3.0 |
| C | 3.4 |
| B | 0.1 |
| Q1206 | |
| E | |
| C | 13.1 |
| B | 12.5 |
| Q1207 | |
| E | 0.1 |
| C | 0.1 |
| B | 4.2 |
| Q1208 | |
| E | 7.5 |
| C | 13.1 |
| B | 8.1 |
| Q1209 | |
| E | 0.1 |
| C | 8.1 |
| B | 0.7 |
| Q1211 | |
| E | -15.0 |
| C | -15.0 |
| B | -15.1 |
| Q1213 | |
| E | 5.0 |
| C | 7.0 |
| B | 5.5 |
| Q1214 | |
| E | 3.0 |
| C | 3.4 |
| B | 0 |
| Q1215 | |
| E | 0.1 |
| C | 0.1 |
| B | 0 |
| Q9004 | |
| E | 0.1 |
| C | 3.5 |
| B | 0.1 |
| Q9005 | |
| E | 3.5 |
| C | 15.0 |
| B | 3.5 |
| Q9051 | |
| E | 0 |
| C | 4.5 |
| B | -0.3 |
| Q9052 | |
| E | 0 |
| C | 4.5 |
| B | -0.3 |
| Q9053 | |
| E | 2.9 |
| C | 0.1 |

| MODE / PIN NO. | CAMERA |
|---|---|
| B | 2.4 |
| TP1203 | 13.1 |
| TP1204 | 7.5 |
| TP1205 | 5.0 |
| TP9001 | 2.6 |
| TP9002 | 2.6 |
| TP9003 | 2.6 |
| TP9004 | --- |
| TP9005 | 0.1 |
| TP9006 | 0.1 |
| TP9007 | 0.8 |

## BATTERY CATCHER C.B.A.

| MODE / PIN NO. | CAMERA |
|---|---|
| IC503 (D) | |
| 1 | 0.1 |
| 2 | 0.1 |
| 3 | 2.5 |
| 4 | 4.8 |
| 5 | 4.9 |
| 6 | 9.7 |
| 7 | --- |
| 8 | --- |
| 9 | --- |
| 10 | 0.1 |
| 11 | 3.5 |
| 12 | 0.1 |
| 13 | 0 |
| 14 | 0.1 |
| 15 | 0 |
| 16 | 5.0 |
| IC901 | |
| 1 | 3.1 |
| 2 | 1.6 |
| 3 | 0 |
| 4 | 0 |
| 5 | --- |
| 6 | 3.5 |
| 7 | 0 |
| 8 | 3.5 |
| 9 | 0 |
| 10 | 0 |
| 11 | 3.1 |
| 12 | 3.1 |
| 13 | 0.1 |
| 14 | --- |
| 15 | --- |
| 16 | 0 |
| 17 | 3.0 |
| 18 | 0.1 |
| 19 | 1.6 |
| 20 | 0.3 |
| 21 | --- |
| 22 | --- |
| 23 | 2.0 |
| 24 | 2.0 |
| 25 | 2.1 |
| 26 | 1.1 |
| 27 | 1.1 |
| 28 | 1.6 |
| 29 | 2.1 |
| 30 | 0.2 |
| 31 | --- |
| 32 | 0 |
| 33 | 0 |
| 34 | --- |
| 35 | --- |
| 36 | 1.6 |
| 37 | 0 |

| MODE / PIN NO. | CAMERA |
|---|---|
| 38 | 3.3 |
| 39 | 8.6 |
| 40 | 3.6 |
| 41 | 1.5 |
| 42 | 0 |
| 43 | 3.6 |
| 44 | 1.4 |
| 45 | 3.6 |
| 46 | 1.4 |
| 47 | 8.6 |
| 48 | 4.3 |
| 49 | 3.1 |
| 50 | 0.9 |
| 51 | 0 |
| 52 | 2.1 |
| 53 | 1.5 |
| 54 | 1.5 |
| 55 | 1.5 |
| 56 | 3.1 |
| 57 | 2.0 |
| 58 | 1.7 |
| 59 | 0 |
| 60 | 0 |
| 61 | 0 |
| 62 | 0 |
| 63 | 0 |
| 64 | 0 |
| Q901 | |
| E | 8.6 |
| C | 14.9 |
| B | 9.1 |
| Q902 | |
| E | 1.8 |
| C | 3.1 |
| B | 9.1 |
| Q903 | |
| E | 0 |
| C | 9.1 |
| B | 0.6 |
| Q904 | |
| E | 0 |
| C | 1.0 |
| B | 0.1 |

**VOLTAGE CHART**
**VM-L153/PV-L353/PV-L353-K/PV-L453**

**MAIN C.B.A.**

| | | |
|---|---|---|
| ΔV1 0.78Vp-p | | |
| PIN12 OF FP8 | REC | |
| 0.2V | 20µs | |

**WF1**

| | | |
|---|---|---|
| ΔV1 0.4Vp-p | | |
| PIN33 OF IC605 | REC | |
| 0.2V | 20µs | |

**WF2**

| | | |
|---|---|---|
| ΔV1 0.63Vp-p | | |
| PIN38 OF IC605 | REC | |
| 0.2V | 20µs | |

**WF3**

| | | |
|---|---|---|
| ΔV1 1.90Vp-p | | |
| PIN2 OF IC605 | REC | |
| 0.5V | 20µs | |

**WF4**

| | | |
|---|---|---|
| ΔV1 1.00Vp-p | | |
| PIN1 OF IC3001 | REC | |
| 0.5V | 20µs | |

**WF5**

| | | |
|---|---|---|
| ΔV1 +480mVp-p | | |
| PIN 34 OF IC3001 | REC | |
| 0.2V | 20µs2 | |

**WF6**

| | | |
|---|---|---|
| ΔV1 +400mVp-p | | |
| PIN 38 OF IC3001 | REC | |
| 50mV | 20µs 1 | |

**WF7**

| | | |
|---|---|---|
| ΔV1 +0.450Vp-p | | |
| PIN 27 OF IC3001 | REC | |
| 0.1V | 20µs1 | |

**WF8**

| | | |
|---|---|---|
| ΔV1 +0.270Vp-p | | |
| PIN 2 OF FP6 | REC | |
| 0.1V | 5ms 1 | |

**WF9**

| | | |
|---|---|---|
| ΔV1 +0.370Vp-p | | |
| PIN 1 OF FP6 | REC | |
| 0.1V | 5ms 1 | |

**WF10**

| | | |
|---|---|---|
| ΔV1 +0.330Vp-p | | |
| Q3005 EMITTER | PB | |
| 0.1V | 5ms 1 | |

**WF11**

| | | |
|---|---|---|
| ΔV1 1.00Vp-p | | |
| PIN76 OF IC3001 | REC | |
| 0.5V | 20µs | |

**WF12**

| | | |
|---|---|---|
| ΔV1 255mVp-p | | |
| PIN37 OF IC3001 | REC | |
| 50mV | 20µs | |

**WF13**

| | | |
|---|---|---|
| ΔV1 215mVp-p | | |
| PIN36 OF IC3001 | REC | |
| 50mV | 20µs | |

**WF14**

| | | |
|---|---|---|
| ΔV1 +4.5Vp-p | | |
| PIN30 OF S301 | REC | |
| 2V | 10ms1 | |

**WF15**

| | | |
|---|---|---|
| ΔV1 +2.0Vp-p | | |
| TP6205 | REC SP | |
| 1V | 10ms1 | |

**WF16**

| | | |
|---|---|---|
| ΔV1 +3.0Vp-p | | |
| PIN24 OF S301 | REC SP | |
| 1V | 0.2ms1 | |

**WF17**

| | | |
|---|---|---|
| ΔV1 +4.30Vp-p | | |
| PIN33 OF IC6001 | REC | |
| 2V | 5µs1 | |

**WF18**

**LCD C.B.A.**

| | | |
|---|---|---|
| ΔV1 4.0Vp-p | | |
| TP9001 | REC | |
| 1V | 20µs | |

**WF19**

| | | |
|---|---|---|
| ΔV1 4.0Vp-p | | |
| TP9002 | REC | |
| 1V | 20µs | |

**WF20**

| | | |
|---|---|---|
| ΔV1 4.0Vp-p | | |
| TP9003 | REC | |
| 1V | 20µs | |

**WF21**

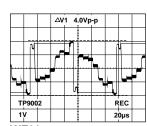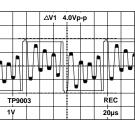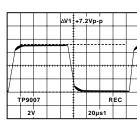| | | |
|---|---|---|
| ΔV1 +7.2Vp-p | | |
| TP9007 | REC | |
| 2V | 20µs1 | |

**WF22**

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

**SIGNAL WAVEFORMS**
**VM-L153/PV-L353/PV-L353-K/PV-L453**